

A Phase I Archeological Survey of ca. 330 Acres
in Various Rehab Areas
on the Fort Knox Military Reservation,
Hardin and Meade Counties, Kentucky

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December 1993

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| Accession For | | |
| NTIS | CRA&I | <input checked="" type="checkbox"/> |
| DTIC | TAB | <input type="checkbox"/> |
| Unannounced | | <input type="checkbox"/> |
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| By _____ | | |
| Distribution / _____ | | |
| Availability Codes | | |
| Dist | Avail and/or Special | |
| A-1 | | |

Directorate of Public Works, Fort Knox, Kentucky 40121-5000
phone 502-624-6581, fax 502-624-2655

19941202 180

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|--|--|--|---|-----------------------------------|
| REPORT DOCUMENTATION PAGE | | 1. REPORT NO. | 2. | 1. Recipient's Accession No. |
| 4. Title and Subtitle A Phase I Archaeological Survey of ca. 330 Acres in Various Rehab Areas on the Fort Knox Military Reservation, Hardin and Meade Counties, Kentucky | | | 5. Report Date December 1993 | |
| 7. Author(s) Pamela A. Schenian and Stephen T. Mocas | | | 8. Performing Organization Rept. No. | |
| 9. Performing Organization Name and Address Directorate of Public Works ATTN: ATZK-PWE (ARCH) U.S. Army Armor Center and Fort Knox Fort Knox, KY 40121-5000 | | | 10. Project/Task/Work Unit No. | |
| 12. Sponsoring Organization Name and Address Directorate of Public Works ATTN: ATZK-PWE (ARCH) U.S. Army Armor Center and Fort Knox Fort Knox, KY 40121-5000 | | | 11. Contract(G) or Grant(G) No. (C) DACW65-93-D-0039 and (G) DABT23-93-C-0093 | |
| 13. Type of Report & Period Covered Final (Oct.-December 1993) | | | 14. | |
| 15. Supplementary Notes Employees in Cultural Resource Management Branch of Directorate of Public Works are outside contractors working for either J.M. Waller Associates, Inc., 9607 Oakington Dr., Fairfax Station, VA 22039 (contract DACW65-93-D-0039) or Program of Archaeology, University of Louisville, Louisville, KY 40292 (contract DABT23-93-C-0093). | | | | |
| 16. Abstract (Limit 200 words) In October-November 1993, a Phase I survey of 133.6 ha (330.2 acres) in 11 scheduled rehabilitation areas on Fort Knox, Hardin and Meade Counties, Kentucky, revisited 15Md143, 15Md154, 15Md163, and 15Md175, and recorded 15Hd482-15Hd487, 15Md336-15Md342, and five isolated finds (IFs). 15Hd17 could not be relocated. Cemetery #37 lies partially in one project area. Cemeteries usually are not eligible for the National Register, but must be protected under KRS 72.020. 15Hd482-15Hd485, 15Md175, 15Md338, and 15Md340 are lithic scatters (15Md340, Middle Archaic; the rest, indeterminate). 15Hd487, 15Md143, 15Md154, 15Md163, 15Md336, 15Md341, and 15Hd342 have prehistoric (15Md336, Middle Archaic; the rest, indeterminate) and historic (15Hd342, mid nineteenth-early twentieth century; the rest, late nineteenth-early twentieth century) components. 15Hd337 is a late nineteenth-early twentieth century farmstead. 15Hd482-15Hd485, 15Md143, 15Md154, 15Md163, 15Md175, 15Md336-15Md338, 15Md340-15Md342, and the IFs are not eligible for the National Register, and no additional investigations are recommended. 15Hd486, an Early-Middle and Late Archaic open habitation site, is potentially eligible for the National Register, and no additional Phase II/III testing and mitigation is recommended. 15Md339 is of indeterminate prehistoric affiliation, and is mostly buried. It is potentially eligible for the National Register, and deep testing is recommended. | | | | |
| 17. Document Analysis a. Descriptors <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> This document has been approved for public release and sale; its distribution is unlimited. </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> b. Identifiers/Open-Ended Terms Archaeology Hardin County, Kentucky Meade County, Kentucky Fort Knox, Kentucky </div> <div style="width: 45%;"> Otter Creek, Kentucky Ohio River, Kentucky Cedar Creek, Kentucky Rolling Fork River, Kentucky </div> </div> c. COSATI Field/Group | | | | |
| 18. Availability Statement Release Unlimited | | 19. Security Class (This Report) Unclassified | | 21. No. of Pages 99 (vii + 92) |
| | | 20. Security Class (This Page) Unclassified | | 22. Price |

ABSTRACT

In October and November 1993, the Fort Knox cultural resource management staff conducted a Phase I archeological survey and literature review of approximately 133.6 ha (330.2 acres) in 11 scheduled rehabilitation areas on the Fort Knox Military Reservation, Hardin and Meade Counties, Kentucky. The survey resulted in the revisiting of four previously recorded sites (15Md143, 15Md154, 15Md163, and 15Md175), and the recording of 13 additional sites (15Hd482-15Hd487 and 15Md336-15Md342), one historic isolated find (IF 2), and four prehistoric isolated finds (IFs 1 and 3-5). Previously recorded site, 15Hd17, could not be relocated. A portion of one historic cemetery, Cemetery #37 or the Cedar Creek Cemetery (Colored), is located in one of the rehab areas.

Sites 15Hd482-15Hd485, 15Md175, 15Md338, and 15Md340 are lithic scatters, 15Md340 of Middle Archaic affiliation and the rest of indeterminate prehistoric affiliation. Sites 15Hd487, 15Md143, 15Md154, 15Md163, 15Md336, 15Md341, and 15Hd342 have both prehistoric and historic components. The prehistoric component at 15Md336 is of Middle Archaic affiliation, and the remainder are of indeterminate prehistoric affiliation. The historic component at 15Hd342 dates from the mid nineteenth to early twentieth century, and the remainder of the historic components probably date from the late nineteenth to early twentieth century. Site 15Hd337 is a late nineteenth to early twentieth century farmstead. Site 15Hd482-15Hd485, 15Md143, 15Md154, 15Md163, 15Md175, 15Md336-15Md338, 15Md340-15Md342, and the isolated finds are not eligible for the National Register due to low artifact counts, lack of evidence for intact cultural deposits, and evidence for previous disturbance. No additional archeological investigations are recommended for these sites and isolated finds.

Site 15Hd486 is an open habitation site with Early to Middle Archaic and Late Archaic components. It is potentially eligible for the National Register, because there are probable intact midden deposits and a high artifact density. Additional archeological investigations, combined Phase II/III testing and mitigation, are recommended for 15Hd486.

Site 15Md339 is of indeterminate prehistoric affiliation, but most of it appears to be buried under alluvial and colluvial deposits. It is potentially eligible for the National Register, due to the potential for buried cultural deposits. Deep testing of 15Md339 is recommended.

Historic cemeteries usually are not eligible for the National Register. They must be protected, however, in accordance with KRS 72.020.

MANAGEMENT SUMMARY

In accordance with Executive Order 11593 and other applicable federal laws and regulations, a Phase I archeological study was conducted of 11 areas scheduled for rehabilitation on the Fort Knox Military Reservation, Hardin and Meade Counties, Kentucky. The survey resulted in the revisiting of four previously recorded sites (15Md143, 15Md154, 15Md163, and 15Md175), and the recording of 13 additional sites (15Hd482-15Hd487 and 15Md336-15Md342), one historic isolated find (IF 2), and four prehistoric isolated finds (IFs 1, 3-5). Previously recorded site, 15Hd17, could not be relocated. A portion of one historic cemetery, Cemetery #37 or the Cedar Creek Cemetery (Colored), is located in one of the rehab areas.

Sites 15Hd482-15Hd485, 15Md175, and 15Md338, and 15Md340 are lithic scatters of indeterminate prehistoric affiliation; 15Md340 is a lithic scatter of Middle Archaic affiliation; 15Hd487, 15Md143, 15Md154, 15Md163, and 15Md341 have prehistoric components of indeterminate affiliation and late nineteenth-early twentieth century historic components; 15Md336 has a Middle Archaic component and a late nineteenth-early twentieth century component; 15Hd342 has a prehistoric component of indeterminate affiliation and a mid nineteenth-early twentieth century historic component; and 15Hd337 is a late nineteenth to early twentieth century farmstead. Sites 15Hd482-15Hd485, 15Md143, 15Md154, 15Md163, 15Md175, 15Md336-15Md338, 15Md340-15Md342, and the isolated finds are not eligible for the National Register. No additional archeological investigations are recommended for these sites and isolated finds.

Site 15Hd486 is an open habitation site with Early to Middle Archaic and Late Archaic components. It is potentially eligible for the National Register, because there are probable intact midden deposits and a high artifact density. Additional archeological investigations, in the form of combined Phase II/III testing and mitigation, are recommended for 15Hd486.

Site 15Md339 is of indeterminate prehistoric cultural-temporal affiliation, but most of the site appears to be buried under alluvial and colluvial deposits. It is considered potentially eligible for the National Register, due to the potential for buried, intact, cultural deposits. Deep testing of 15Md339 is recommended to clarify the nature and extent of the cultural deposits.

Historic cemeteries typically are not eligible for the National Register, and in Kentucky are considered cultural resources, but not archeological sites. They must be protected, however, in accordance with KRS 72.020.

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I. INTRODUCTION

In October and November 1993, the Fort Knox Staff Archeologist and Assistant Staff Archaeologist performed a Phase I archaeological survey of 11 proposed rehabilitation (rehab) areas at Fort Knox, Hardin and Meade Counties, Kentucky (Figures 1-4). The rehab areas comprise a total of approximately 330 acres (133.6 ha). The area scheduled for rehab in Training Area (TA) 3 (40.8 acres, 16.5 ha) is in Hunting Area (HA) 82, and the area in TA 6 (29 acres, 11.7 ha) is in HA 73. The southern scheduled rehab area (55.1 acres, 22.3 ha) in TA 8 is in HA 14, and the northern scheduled rehab area (58.8 acres, 23.7 ha) is in HA 13. Four rehab areas are scheduled in TA 9. The western area is in HA 12 (53.1 acres, 21.5 ha), the northern area is in HA 12 (1.0 acre, 0.4 ha) and HA 13 (4.0 acres, 1.6 ha), and the eastern (4.0 acres, 1.6 ha) and southern (44.5 acres, 18.0 ha) areas are in HA 14. The northern scheduled rehab area in TA 10 is in HA 8 (20.5 acres, 8.3 ha), and the southern scheduled rehab area (18.4 acres, 7.4 ha) is in HA 9. The scheduled rehab area in TA 11 is not within a Hunting Area, and comprises approximately 10.0 acres (4.0 ha) in size. For the purposes of this report, the rehab areas are identified in the text and figures by the training area and, if there is more than one rehab area in a training area, by the location of the rehab area within the training area. For example, the southern rehab area in Training Area 9 is referred to as TA 9-S.

The areas scheduled for rehabilitation consist of current or former tank training areas (TA 3, TA 6, TA 8-S, TA 8-N, TA 9-S, TA 10-S, TA 10-N, and the southern portion of TA 9-W), eroded road cuts (TA 9-E, the upland portion of TA 9-N, and the northern portion of TA 9-W), a motor cross track (TA 11), and a dirt parking area near Otter Creek (the floodplain portion of TA 9-N). The objectives of rehabilitation of these areas are to control erosion and sedimentation, to restore natural landscape, and to create noise and dust barriers. Along eroded road cuts, the rehabilitation will consist of grading the road cut to remove gullies and planting the cutbank in erosion controlling vegetation. In tank training areas, the deep gullies on ridge slopes will be filled in by grading the adjoining slopes, essentially transforming the terrain from dissected uplands to undissected uplands by smoothing the contours on the slopes. The ridge tops and upper slopes will be plowed or disked, and the entire rehabilitation area will be seeded in erosion controlling plants. In the floodplain portion of the TA9N, the existing dirt parking area will be graded to remove the gullies, and gravel will be laid to create a more compact, stable parking surface. Where possible, rehab activities avoid the removal of existing large trees. Rehab is scheduled to begin in March 1994 and to be completed on or about 30 May 1994. The archeological survey and literature review

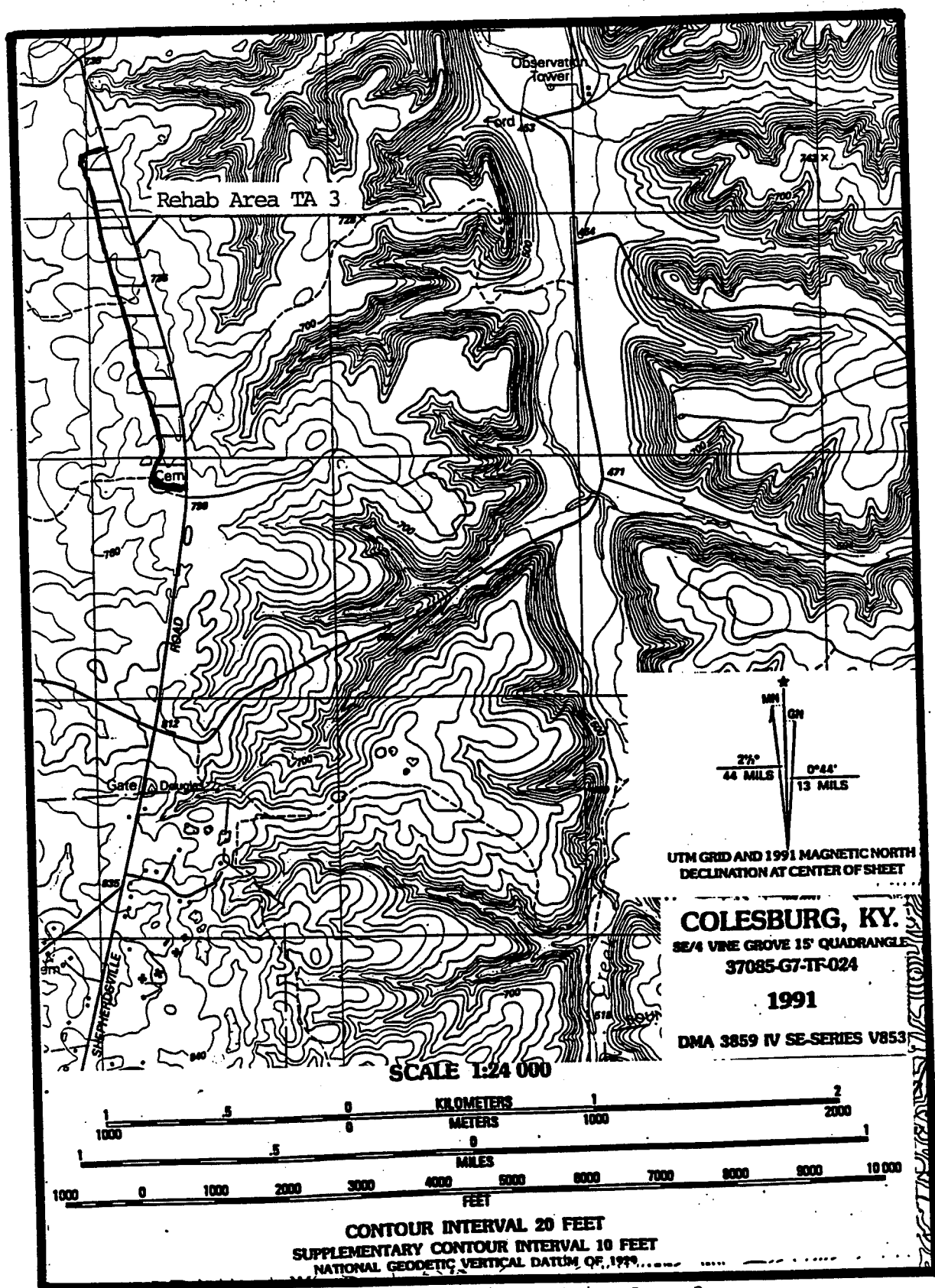


Figure 1. Location of Project Area in Training Area 3.

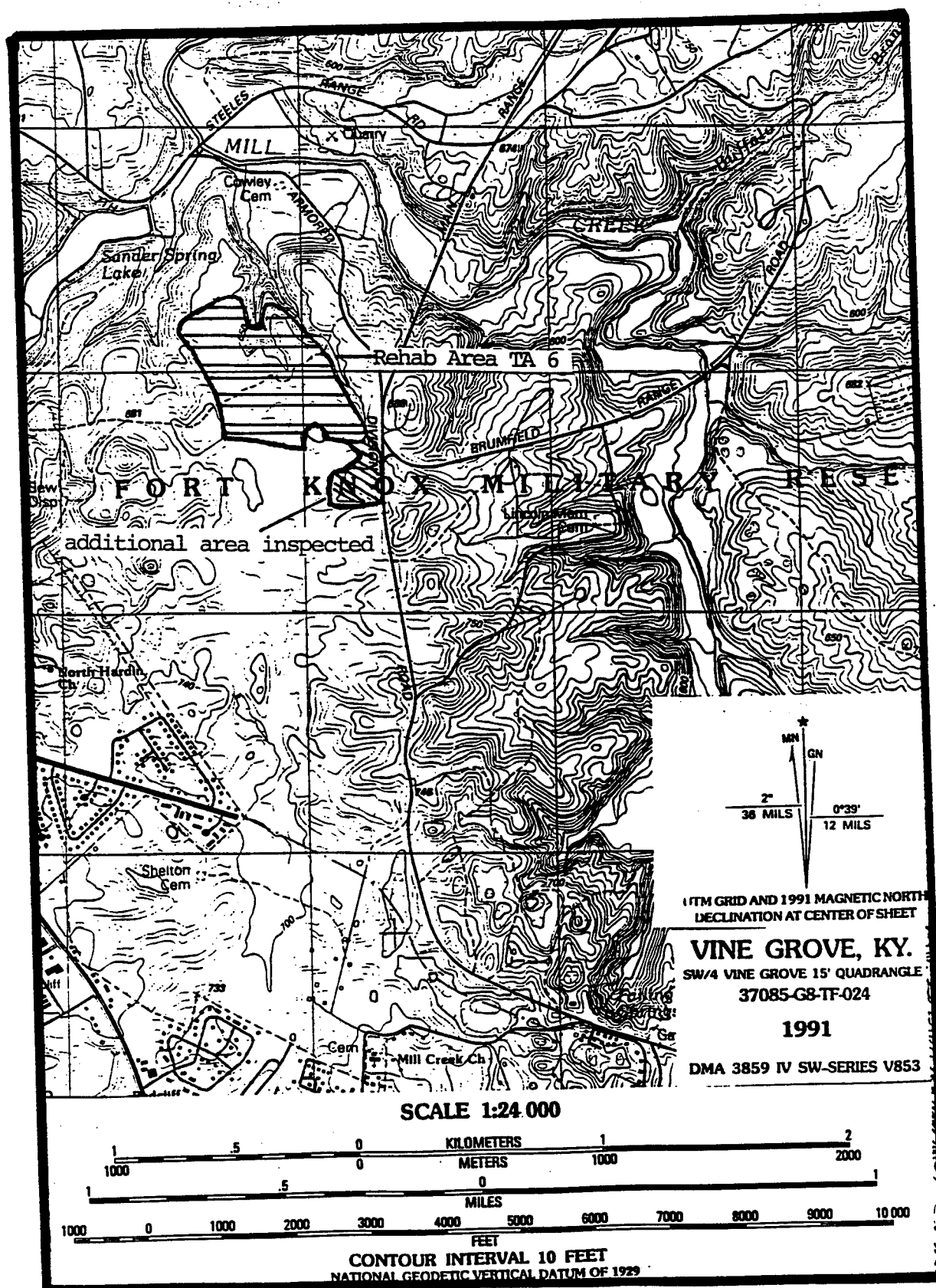


Figure 2. Location of Project Area in Training Area 6.

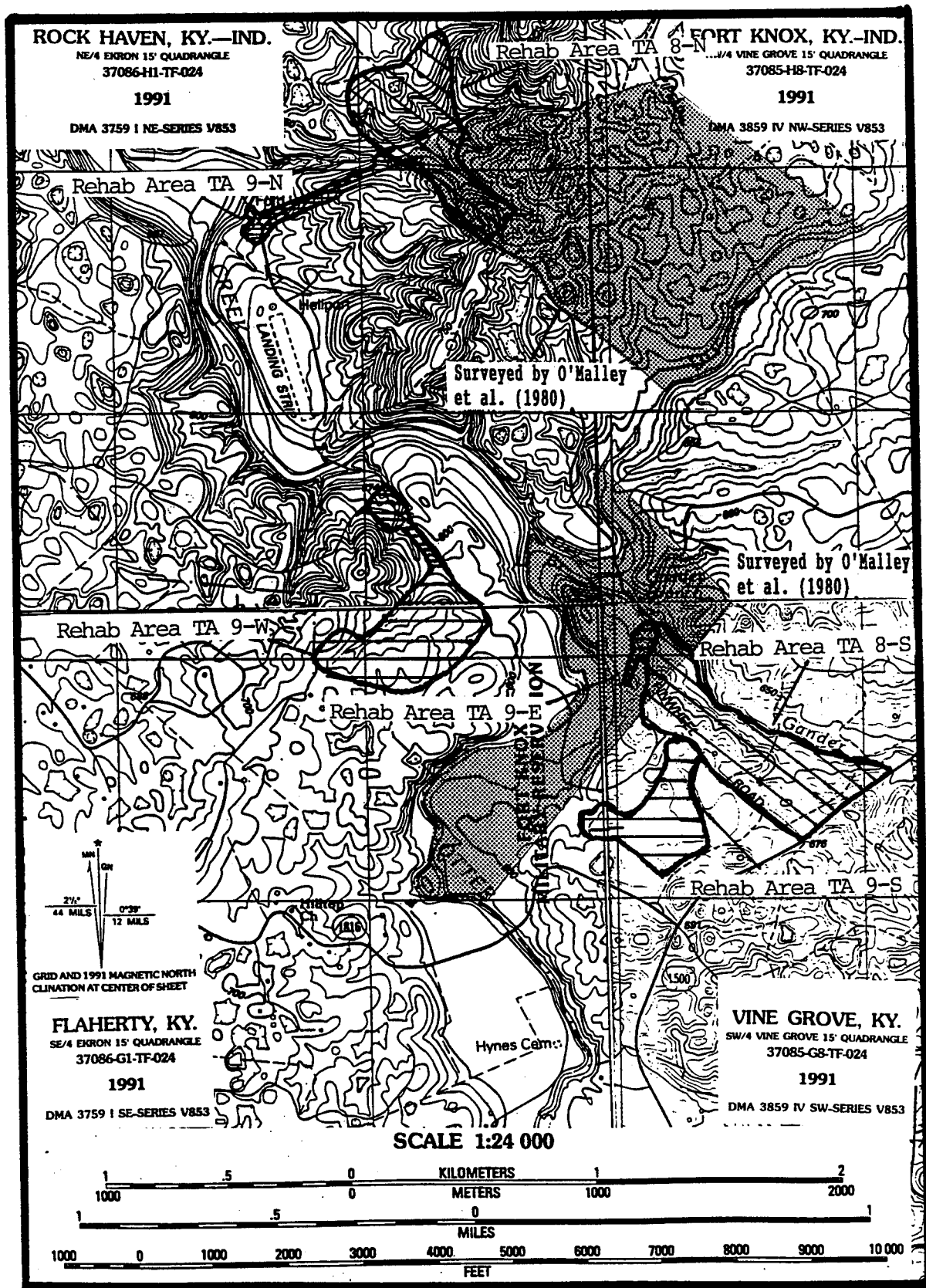


Figure 3. Location of Project Areas in Training Areas 8 and 9.

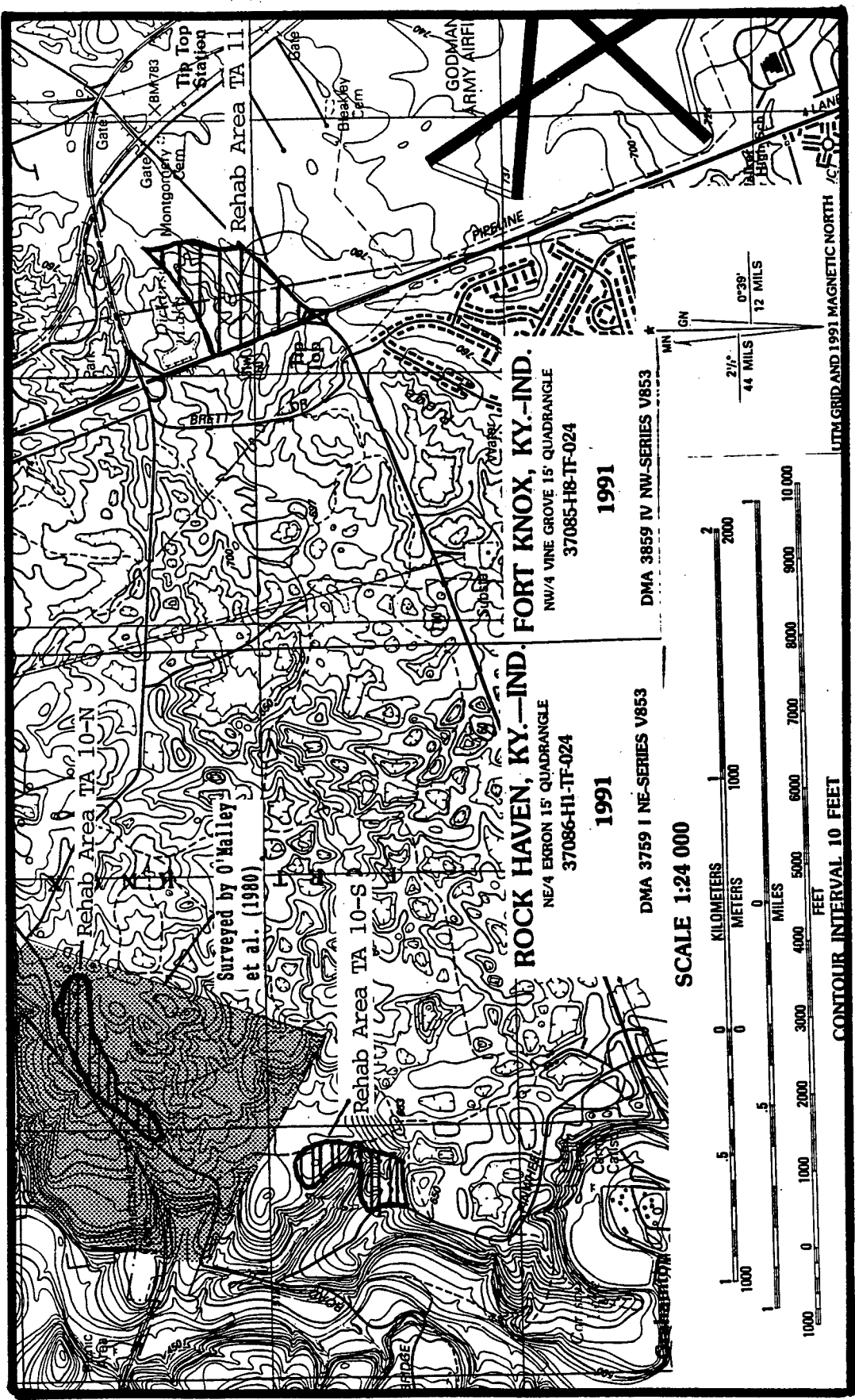


Figure 4. Location of Project Areas in Training Areas 10 and 11.

conducted in preparation for the rehabilitation activities were required to comply with the National Environmental Protection Act, or NEPA, (Public Law 91-190), the Historic Preservation Act of 1966, as amended (Public Law 89-665), the Archaeological Resources Protection Act of 1979 (Public Law 96-95), Presidential Executive Order 11593, and Army Regulation 420-40.

During the period July through August, 1993, the Staff Archeologist obtained copies of all of the state site forms for sites on the Fort Knox installation from the Office of State Archaeology (OSA), University of Kentucky, Lexington, and of all reports of previous investigations on the installation or immediately adjacent to the installation from various sources. She also updated the site files by comparing the cultural resources quadrangle maps against the quadrangles on file at the OSA. All documents necessary to perform Phase I literature searches for the installation are present at the Cultural Resource Management Branch of the Directorate of Public Works (DPW), Fort Knox, and no file check was made with the OSA or KHC specifically for this project.

A literature search revealed that two of the 11 scheduled rehabilitation areas (TA 9-E and TA 10-N) and portions of two others (TA 8-S and TA 8-N) had been previously surveyed (O'Malley et al. 1980). The previous survey resulted in the identification of four sites (15Md143, 15Md154, 15Md163, and 15Md175) within the proposed rehabilitation areas. One additional site (15Hd17) had been reported by an individual as an accidental discovery near TA 6, but it could not be relocated with the available information. Areas previously surveyed were not systematically field inspected in the current study in their entirety, but the sites reported in the areas were revisited. All areas that had not been previously surveyed were field inspected in the current study.

The 11 scheduled rehabilitation areas are located in the Plain section of the Pennyrile cultural landscape, primarily on the tops and slopes of dissected ridges, though portions of the scheduled rehabilitation areas in the southern part of Training Area 8 and the northern part of Training Area 9 extend into the floodplain. Elevations in the scheduled rehabilitation areas range from 600 to 800 feet. Soils in the scheduled rehabilitation areas are classified as Crider-Vertrees-Nicholson soil association (Arms et al. 1979: General Soil Map). Drainage in the scheduled rehabilitation area in Training Area 3 is into the Dorrets Branch of Mill Creek, a tributary of the Rolling Fork of the Salt River, and into Cedar Creek, a tributary of the Salt River. The drainage in the other scheduled rehabilitation areas is into Otter Creek and its tributaries, which flow into the Ohio River.

Gail Pollock, the Integrated Training Area Management (ITAM) coordinator, acted as field guide on October 1, 1993, to delineate the boundaries in each project area and describe the proposed rehab activities to the Principal Investigator. The initial surface reconnaissance of all of the scheduled rehabilitation areas not previously surveyed was performed by Schenian on October 13, 14, 21, 23, and 26 through 29. A more intensive walkover, shovel probing, and/or photographic documentation of archeological sites in TA 6, TA 8-S, TA 9-W, and TA 9-N, were also conducted by Schenian on these days. Rehab area TA 9-S, and the remaining sites discovered by Schenian or previously recorded by O'Malley et al. (1980) were examined by both Schenian and Mocas on November 16, 23, and 29, 1993. A total of 78 person hours were spent in the survey of the scheduled rehabilitation areas.

The artifacts from the survey were washed and analyzed by the authors, and will be catalogued by a student assistant at the University of Louisville Program of Archaeology. The artifacts and the documentation for this project will be curated at the Archeology Laboratory, University of Louisville, on a "permanent loan" basis, under contract number DABT 23-93-C-0093, for curatorial and technical support (copy of contract on file, DPW, Fort Knox, Kentucky). Duplicate copies of the documentation will be stored at the Directorate of Public Works (DPW), U.S. Army Armor Center and Fort Knox, Fort Knox, Kentucky.

II. SETTING AND ENVIRONMENTAL BACKGROUND

O'Malley et al. (1980) have prepared a detailed description of the setting and environmental background of the Fort Knox base as a whole. This section will concentrate on the topographic characteristics of the scheduled rehabilitation areas inspected in the current study.

All of the scheduled rehabilitation areas lie in the Mississippian Plateau physiographic region of Kentucky (McGrain and Currrens 1978:35). The rehabilitation areas in Training Area 10 lie in a karst plain of low local relief with numerous sinkholes and few surface streams (McGrain and Currrens 1978:54). The terrain in the other scheduled rehab areas is characterized by broad, flat-topped ridges adjoining narrow, steep walled stream valleys (McGrain and Currrens 1978:35).

Rehab area TA 3, in Hunting Area 82, is bounded on the east by Shepherdsville Road, on the south by Cedar Creek Cemetery, and on the north by a previously rehabilitated area. The proposed rehabilitation area extends approximately 150 m west of the road. The area ranges from 720 to 800 feet in elevation, slopes downward toward a tributary of Dorrets Run Creek near the center, and contains erosional gullies ranging in depth from 30 to 200 cm. The surface is covered with scrub vegetation and small wooded areas, with numerous heavily eroded trails and denuded areas caused by tank training. Standing water and cattails fill some of the tank trails.

Rehab area TA 6, in Hunting Area 73, is confined primarily to the top and upper slopes of two ridges that are bounded on the northeast by a drainage that flows northwest into Mill Creek, and on the south by a large sinkhole filled with water. The area ranges from 700 to 620 feet in elevation. The ridge tops are relatively flat, with a few sinkholes, and they contain erosional gullies from 30-300 cm deep. Portions of the surface are covered with weeds, grasses, and trees in varying density, with numerous heavily eroded trails and denuded areas caused by tank training. Isolated islands of intact vegetation and topsoil, including several large tracts were scattered throughout the proposed rehabilitation area.

Rehab area TA 8-S, in Hunting Area 14, is bordered on the north and west by Pinwheel Road, on the east by the Gander Branch of the Dry Branch of Otter Creek, and on the south by Vine Grove Road. The area slopes downward to the northeast from 690 to 600 feet in elevation. The surface is covered with woods and scrub, and there are heavily eroded tank trails. Most of the central ridge top in TA 8-S has been borrowed to subsoil and the fill used to create a raised area which has a gravel cover with bleachers.

Rehab area TA 8-N, in Hunting Area 13, is bordered on the west by Pinwheel Road, on the east by drainages that flow into a tributary of Otter Creek, and on the south by a tank trail. The northern boundary was flagged prior to the survey. The area ranges from 750 to 630 feet in elevation, sloping downward toward a tributary of Otter Creek near the center. The level areas have a few sinkholes and the surface is eroded into the subsoil. The steep slopes are covered with trees and scrub, have deep erosional gullies, and several tank or bulldozer trails.

Rehab area TA 9-N, in Hunting Area 13, is located on both sides of a gravel road that intersects Pinwheel Road from the west. On the south side of the road the rehab area starts near the center of the track at a small borrow area, and continues westward downslope to the end of the rehab area. On the north side of the road, the rehab area starts at Pinwheel Road and continues to the end of the rehab area on the floodplain of Otter Creek. The road descends from 630 to 540 feet in elevation. The rehab area is bounded by Pinwheel Road on the east and by the floodplain of Otter Creek on the west. The rehab area is approximately 10 m wide, on either side of the road comprising the eroded roadcut, except on the Otter Creek floodplain. The roadcut has limited amounts of scrub vegetation, but the majority of it is denuded. On the Otter Creek floodplain the rehab area is a maximum of 50 m long (east-west) and 80 m wide (north-south). The floodplain area has a small amount of scrub vegetation, and the surface is deeply rutted by eroded vehicles tracks and erosion gullies.

Rehab area TA 9-E, in Hunting Area 14, is bordered on the east by Pinwheel Road. The rehab area consists of the eroded road cut adjoining Pinwheel Road, a deeply gullied tank trail on a steep northeast ridge slope, and a less eroded tank trail on the east slope. Elevations in the project area range from 660 to 590 feet. The slopes are covered with trees and scrub vegetation. The roadcuts and tank trails in this area are deeply eroded and have limited scrub vegetation.

Rehab area TA 9-S, in Hunting Area 14, is bordered on the south by the DPW borrow area and on the northeast by Pinwheel Road. The west and north boundaries were flagged. The area is relatively level, sloping at the west side from 690 to 660 feet in elevation, toward a tributary of Otter Creek. The surface is almost completely eroded to subsoil, with only a small amount of scrub vegetation. Erosional gullies are present along the tank trails.

Rehab area TA 9-W, in Hunting Area 12, consists of two separate activity areas connected by an existing dirt road which borders the areas on the east. The southern activity area within rehab area TA 9-W consists of the top and east

and north slopes of a ridge. The southwest boundary of this activity area was formed by a tree line, the southeast boundary by a ravine, the northeast boundary by the dirt road, and the northwest boundary by flags. This rehab area varies from about 700 feet in elevation to about 570 feet in a broad level area near the road. The ridge top has been denuded by tank training and eroded or deflated well into the subsoil, and the slopes are wooded in pines and scrub growth. The erosional gullies range from 1-5 m in depth. The other activity area in rehab area TA 9-W is an island of intact soil at the junction of two dirt roads, at which the eroding roadcut will be graded and seeded in erosion control plants. This activity area is on a level bench above Otter Creek at an elevation of 590 feet.

Rehab area TA 10-N, in Hunting Area 8, is bordered on the north by Twin Bridge Road (Old Salt River Road) and by a tree line on the south. The area lies on the top and upper slope of a ridge that slopes downward from 670 feet to 600 feet in elevation. The west half has been borrowed and has scrub growth of variable density. The remainder of the area has little vegetation and has been eroded to subsoil by tank training.

Rehab area TA 10-S, in Hunting Area 9, is bordered by Pinwheel Road on the west, and encompasses the tops and upper slopes of ridges on both sides of a tributary of Otter Creek. The area ranges from 640 to 540 feet in elevation, sloping downward toward a tributary of Otter Creek near the center. The upper area was heavily eroded by tank training and the slopes are dissected by deep erosional gullies.

Rehab area TA 11 is not within a Hunting Area. It is bordered on the southwest by Highway 31W, on the southeast by Highway 60, and on the northwest by a service road. The area ranges from 740 to 715 feet in elevation, sloping downward toward a drainage that flows into Dickerson Lake, near the center. The north slope is wooded and the remainder is in scrub or without vegetation. The surface has been altered to form a motor cross course. Portions of the area have been borrowed. The slopes, especially on the north side, are dissected by erosional gullies.

III. CULTURAL BACKGROUND

O'Malley et al. (1980:Chapter 3) contains a very detailed overview of the cultural background of the Fort Knox area. This section provides a general overview of the prehistory, protohistory, and history of the region.

Three distinct temporal-cultural periods may be distinguished within the Kentucky area: prehistoric, protohistoric, and historic (Griffin 1967). Prehistory (ca., 10,000 B.C. to A.D. 1600) refers to that time before the use of written records within a particular geographical region. Protohistory (ca., A.D. 1600 to A.D. 1770) is the time period shared between two or more cultural groups within the same area in which only one of the groups makes use of writing. All historic cultural groups use writing as a form of communication and record keeping. The transition from the protohistoric period to the historic period is generally gradual, consisting of the replacement of non-literate societies by members of a literate society and/or the adoption of writing by a previously non-literate society. In the project area, history begins around A.D. 1770, when Euro-Americans began to establish permanent settlements in the region and Native Americans were displaced or assimilated.

The major classificatory stages or cultural traditions of eastern U.S. prehistory are Paleo-Indian, Archaic, Woodland and Mississippian. The Archaic and Woodland periods are further subdivided into Early, Middle and Late temporal subperiods. These subdivisions correspond in general to significant developments within a cultural tradition, such as the development of mound building or the invention of a new technology such as ceramic manufacture.

The Paleo-Indian Tradition is one of the earlier, if not the earliest, cultural stages of prehistoric development in the New World. The Paleo-Indian Tradition (ca., 10,000 B.C. to 8000 B.C.) is generally characterized by small bands of nomadic hunters. These individuals lived during the cold climatic conditions associated with the end of the Wisconsin glaciation. They manufactured single- and double-fluted, lanceolate projectiles, and other types of bifacial and unifacial chipped stone tools. Although frequently referred to as "Big Game Hunters", because some Paleo-Indian artifacts have been found in association with extinct Pleistocene megafauna, i.e., mammoth and mastodon, the Paleo-Indians relied more frequently on the hunting of barren ground caribou, elk, white-tail deer, black bear, bison, and numerous smaller vertebrates. Some Paleo-Indian sites also contain tools that may have served as grinding implements for processing plants. The Paleo-Indian, therefore, was a gatherer of wild plant foods as well as a hunter. Very little is known, however, about the sociological or ideological aspects of Paleo-Indian culture (e.g., social organization,

settlement system, and burial customs). Rolingson and Schwartz (1966) and Rolingson (1964) have suggested several plausible hypotheses about Paleo-Indian adaptation and cultural process, however.

From about 8000 B.C. to 1000 B.C., climatic conditions appear to have stabilized. Yearly temperature averages were, in some areas, probably slightly greater than those today. The cultural adaptations during this seven thousand year period appear to have been extremely successful (Caldwell 1958) and archeological evidence of the Archaic cultural tradition is much more plentiful than that of the preceding Paleo-Indian period, probably because of a general increase in population size and more permanency in settlement patterns.

Regional variation in multi-niche exploitation appears to have been the subsistence theme throughout the Archaic Tradition. Oscillation between focal and diffuse subsistence economies were present (Cleland 1976) and probably related to regional cultural techno-environmental potential and exploitation techniques. Technological inventories of material culture were greatly expanded to perform the myriad tasks necessary for multi-niche exploitation, i.e., various projectile point forms, scrapers, burins, knives, drills, and perforators, as well as a variety of groundstone axes or celts, pestles, grinding stones, and hammerstones. Some evidence of basketry and textile production also exists for the eastern U.S. area cultures, especially from Kentucky (Watson 1974). Social organization appears to be more complex and ideological expressions, e.g., burials with grave goods, are more frequent. Near the end of the Archaic Period some Kentucky cultures demonstrate expansion in food subsistence pursuits (e.g., horticulture) production of ceramics and/or stone bowl prototypes, and the establishment of long-distance trade routes through which rare or precious raw materials and ideas are transmitted.

It is out of the Archaic Tradition that the Woodland cultures developed beginning around 1000 B.C. This cultural tradition lasted until about A.D. 900. The broad spectrum of cultural development seen in the Archaic is greatly expanded and embellished during the Woodland Period by Ohio Valley cultural groups, e.g., Adena (ca., 1000 B.C. to 300 B.C.) and Hopewell (ca., 300 B.C. to A.D. 300) cultures.

During the early to middle portions of the Woodland Period (ca., 1000 B.C. to A.D. 300), secular-elitism and aesthetic developments were emphasized (e.g., elaborately furnished burial offerings, and the construction of large conical burial mounds for only certain individuals within Woodland society). Sedentary or permanent settlements with rounded- or squared-walled dwellings were constructed in areas generally accessible to flat river bottomlands. The latter areas were used principally for horticulture. How-

ever, hunting still appears to have been an important subsistence activity and many small hunting camps have been located (Prufer and McKenzie 1967).

By A.D. 900, the mid-Ohio Valley region cultures continued the Woodland development, but with added subsistence emphases that included permanently settled, agriculturally-oriented communities. Aesthetic cultural-behavioral norms seem to be replaced with utilitarian norms. Villages several acres in size were often fortified with palisade walls and were generally located on small hill tops overlooking floodplains. Horticulture, including the growing of corn, beans and squash, was well developed. The bow and arrow were new technological inventions. Burials occurred within limestone slab burial chambers. These post-Woodland cultural developments appear to have persisted until the influx of European missionaries and traders, ca. A.D. 1650. After the influx, native American populations suffered a major decline in population, primarily as a result of introduced diseases to which they had no natural resistance.

Two distinct post-Woodland traditions occur in Kentucky. The Mississippian Tradition appears to be confined to the western two-thirds of the state, while the Fort Ancient Tradition appears to be confined to the eastern third (Lewis 1990; Sharp 1990). The Falls of the Ohio - Salt River Archeological Management Area lies at the boundary of the two traditions, and there has been some dispute over which tradition is represented in the area (cf. Granger et al. 1981; Kellar 1973; Lewis 1990).

Social disruption and cultural dislocation among Indian groups occurred primarily during the Protohistoric Period. By the late 17th and 18th centuries, disease, disruption and social turmoil were marked to such an extent that specific Indian groups were said to be no longer inhabiting Kentucky. In 1780, John Filson had visited Kentucky and in 1784 published a book stating that no Indian tribe laid claim to the area known as Kentucky. Kentucky, therefore, was "free" for White settlement (Filson 1784). European expansion into the Ohio Valley and Kentucky Chickasaw and Shawnee Territories led to additional conflicts. It also resulted in the complete depletion of elk, buffalo, and other big game animals.

The earliest European exploration of what was to become Kentucky has not been established, but Marquette and Jolliet passed by the mouth of the Ohio, and west Kentucky, in 1673 during their exploration of the Mississippi River (Alvord 1965: 63-64). Other French, English, and Spanish traders and explorers may have passed through the territory in the late seventeenth century to mid-eighteenth century as well (McBride and McBride 1990:583). Settlement by Europeans did not begin until the time of the American Revolution, however. A treaty with the Cherokee opened the land for settlement in 1775, and Daniel Boone's fort in present Madison

County was constructed in the same year (Kerr 1922). Kentucky County, legally part of Virginia, was established in 1776. As the population increased in the area, this area was divided to form smaller political units.

Kentucky became a state in 1792. Hardin County was formed that year, with Elizabethtown as its county seat. Meade County was formed in 1823 from portions of Hardin and Breckinridge counties, with Brandenburg its county seat.

Earliest settlements in the Fort Knox vicinity usually were established near major rivers or navigable streams. Settlement tended to be nucleated for protection from hostile Indians. As the Euro-American and Afro-American population increased and the Native American population declined or was moved westward during the early nineteenth century, settlement in the project vicinity became more dispersed. Isolated farmsteads were established, but generally were linked to hamlets or towns, which provided stores, churches, schools and other goods and services (O'Malley et al. 1980: 32-33). The farmsteads in the project areas probably would have relied most heavily on the towns of Garnettsville (established in 1792), West Point (established in 1796), Grahamton (established 1837), Rock Haven (established by 1855), Vine Grove (established in 1856), Muldraugh, Radcliff (established ca. 1919), Stithton, Tip Top, Steele's Cross, and Crutcher.

The project counties experienced an economic decline in the late nineteenth century, with a concomitant out-migration of population. This was due in part to the limited agricultural and mineral resources of the area, in part to the impact of the introduction of the railroad on river-oriented communities, and in part to the proximity to the expanding urban centers of Louisville and Elizabethtown, with which the small towns near the project area could not compete (O'Malley et al. 1980: 38). In the early twentieth century, the Army initiated purchase of the properties which now form the installation. This resulted in the abandonment of the nuclear farmsteads and small towns located within the boundaries of the reservation and the relocation of the former inhabitants. The northern portion of rehab area TA 8-N was acquired ca. 1919. All the other proposed rehab areas were acquired in the 1940's.

IV. PREVIOUS RESEARCH

A number of cultural resource management (CRM) projects have been conducted on the Fort Knox military reservation. Numerous projects also have been conducted in the portions of Bullitt, Meade, and Hardin Counties outside the military reservation, according to the state archeological bibliography and updates. O'Malley et al. (1980) provide an in-depth discussion of research in Bullitt, Hardin, and Meade counties through 1979, and Schenian (1991) and Schenian and Mocas (1992) provide a summary of the research which has taken place since the O'Malley et al. (1980) study was completed. This section will focus on the projects which have been conducted on the military reservation and within the vicinity of the current project areas.

There are 112 Hunting Areas on the Fort Knox installation. O'Malley et al. (1980) surveyed approximately one-quarter of each of the 96 hunting areas which did not contain grenade ranges. O'Malley et al. (1980) recorded 415 sites (15Bu295 through 15Bu410, 15Hd109 through 15Hd294, and 15Md103 through 15Md242). Some of these sites were recorded outside the official survey areas, and were discovered while gaining access to the selected survey areas from the closest access road. Some of the sites are isolated finds. O'Malley et al. (1980) did not formally evaluate the National Register status of any of the sites inspected, although opinions are offered on many of the site forms. The purpose of the O'Malley et al. (1980) study was to provide a preliminary inventory of portions of the installation and to develop a database for the predictive modeling of site locations on the installation, and not to evaluate sites for a task-specific construction project. Holmberg (1991) prepared an archival study on the four mill sites (15Md164, 15Md176, 15Md185, and Grahamton) recorded by O'Malley et al. (1980) in the Meade county section of the base. Holmberg's (1991) study includes an appendix (Ball 1991a) delimiting a scope of services for the testing of the mill sites. This testing has not yet been conducted.

A number of projects have been conducted in conjunction with proposed timber harvests. Bush et al. (1988) revisited 15Bu319 and recorded sites 15Bu438 through 15Bu446 and 15Bu485 through 15Bu491 in their survey of timber areas in Hunting Areas 41, 42, and 52. Myers (1990) surveyed 287 acres in Hunting Area 95, recording 15Bu495 through 15Bu502, and describing modern house and garbage dump sites. Mueller (1991) surveyed 270 acres in Hunting Area 1, revisiting 15Md11, 15Md152, and 15Md159, and recording 15Md322 through 15Md325, two historic cemeteries, five prehistoric isolated finds, and three modern structures. Schenian and Mocas (1992) surveyed 600 acres and attempted to relocate and flag previously recorded sites in an additional 300 acres. Their project areas consisted of 14 timber parcels located in

Hunting Areas 13, 74, 76, 77, 78, 81 through 84, and 88 through 90. This survey resulted in the recording of sites 15Hd462-15Hd464, 15Md326, and one isolated find, and the revisiting of 15Hd140. Attempts were made to relocate 15Hd18, 15Hd113, and 15Hd139, but were unsuccessful. Ruple (1992b) revisited sites 15Md152, 15Md153, and 15Md322 in Hunting Area 1. Ruple (1992a) revisited sites 15Hd184, 15Hd186, and 15Hd249, and made an unsuccessful attempt to relocate 15Hd248, in order to flag avoidance boundaries around the sites in Hunting Area 90 in preparation for logging activities in conjunction with the clearing of the Highway 313 easement. Ruple (1993a) surveyed all 813 acres comprising Hunting Area 4 in preparation for timber harvests in scattered parcels within the Hunting Area.

The improvement of facilities on the Fort Knox installation has resulted in several CRM studies. Sorensen and Ison (1979) surveyed a proposed telephone building expansion site and access road in the cantonment area, recording no sites. Sussenbach (1990) surveyed three weather radar installation sites, in Hunting Area 23, discovering one prehistoric isolated find. Ruple (1993b) surveyed approximately 10 acres in the cantonment area for a shoreline maintenance project, encountering no sites.

The development, expansion, or improvement of training areas has resulted in a number of CRM studies. Driskell and O'Malley (1979) surveyed the Wilcox Gunnery Range, recording sites 15Bu393 through 15Bu397. Schenian (1991) surveyed 116 acres in portions of Hunting Areas 17, 30, and 41, in conjunction with the Fort Dix realignment, re-examining 15Bu303, and recording 15Bu492, 15Hd459, and two prehistoric isolated finds. Hemberger (1991a) also surveyed approximately 405 acres in seven construction sites in Hunting Areas 17, 24, 31, 32, 34, and 54, in conjunction with the Fort Dix realignment. This study resulted in the recording of 15Hd461 and 15Bu504, the revisiting of 15Bu299 and 15Bu385, and the unsuccessful attempt to relocate previously recorded site 15Hd274. Hemberger (1991b) surveyed a total of 126 acres in four proposed construction areas in the Yano Tank Range, in Hunting Area 93, recording 15Hd460, revisiting 15Hd178, 15Hd182, and 15Hd282, and unsuccessfully attempting to relocate previously recorded site 15Hd283. Hemberger (1992) surveyed a 7.5 acre borrow area in Hunting Area 24, proposed to be used for the consolidation and improvement of two training ranges, and encountered no sites.

In conjunction with land sales, Ball (1987) surveyed approximately 196 acres in the Bullitt County portion of Fort Knox, recording sites 15Bu479 through 15Bu481 and describing one post-1950, or modern, house foundation. Ball (1991b) also surveyed a 19 acre tract near Radcliff prior to disposal of the tract, recording two historic/modern trash dumps which were not assigned state site numbers. Hale

(1981) surveyed the Otter Creek Park, recording 15Md243 through 15Md303. Portions of Otter Creek Park, now owned by the City of Louisville, were once part of the Fort Knox military installation, but were disposed of in the 1970's.

Road construction and improvements have resulted in a number of CRM projects on the military reservation. McGraw (1976) surveyed the proposed U.S. 60 bridge and approaches near Otter Creek park, encountering no sites in a 2.35 mile long corridor which passes through Hunting Areas 7 through 9 and 11 and 12. Fiegal (1982) surveyed the Radcliff Industrial Park access road, including land in Hunting Area 15 as well as off the installation. He recorded 15Hd403 and 15Hd404 off the installation, and revisited 15Hd215 and 15Hd272 on the installation. Webb and Brockington (1986) surveyed the 4.75 mile long Kentucky Highway 1638 realignment corridor, which included portions of Hunting Areas 5 and 7 through 10. They revisited sites 15Md176, and 15Md182 through 15Md185, and recorded 15Md306, 15Md307, and 15Md309. Sites 15Md176, 15Md182, 15Md183, and 15Md307 were all parts of the former town of Garnettsville. The latter three sites were tested (Wheaton 1982), but 15Md176 was not tested because it fell outside the 1638 realignment easement. DiBlasi (1986) surveyed 14 alternative alignments of the approximately 20 km (12.4 miles) long Kentucky Highway 313 corridor, which includes portions of Hunting Areas 80 through 83 and 90, as well as land outside the installation. A total of 27 sites (15Hd406-15Hd430 outside the installation, and 15Hd135, 15Hd184, 15Hd186, 15Hd248, 15Hd249, 15Hd253, 15Hd431, and 15Hd432 on the installation), some previously recorded, were located in the survey corridor. Hixon (1992) tested 15Hd423 and 15Hd426, and archeologists from Wilbur Smith Associates tested six sites on the installation, including 15Hd249 and 15Hd253 (Fenton 1993: personal communication). Schenian (1993) performed a literature search and Phase I survey of six proposed spoil pile areas. Three of the spoil areas had been previously surveyed by DiBlasi (1986) and one by O'Malley et al. (1980), with negative findings. The two remaining spoil areas were field checked by Schenian, with negative results.

In addition to the CRM projects, several sites have been recorded on the military reservation in non-CRM contexts. Funkhouser and Webb (1932) published a catalog of archeological sites in the state, with the information gained primarily through correspondence with amateur archeologists, collectors, and local historians, and included the description of two sites now on the military reservation. These are 15Md10, a mound group on Indian Hill, and 15Md11, a mound near the mouth of Otter Creek (Funkhouser and Webb 1932: 281). Lee Hanson recorded 15Hd17 and 15Hd18, while attending ROTC training camp at Fort Knox in 1961 (Hanson 1961a, 1961b; Dr. R. Berle Clay 1991: personal communication). The wife of a soldier stationed at Fort Knox partially excavated

15Hd273, a mound in Hunting Area 6, in the early 1960's (Anonymous n.d.).

Of greatest relevance to the present study is O'Malley et al. (1980), which reported sites in or near several proposed rehabilitation areas. They reported site 15Md154 in the rehab area TA 8-N and 15Md175 in rehab area TA 10-N. Site 15Md143 was found at the boundary of Training Areas 8 and 9, falling partly within rehab area TA 8-S. Site 15Md163 was found in rehab area in TA 9-S, but was only cursorily inspected by O'Malley et al. due to incoming training activities. Sites 15Md138-15Md141 and 15Md146 were recorded several hundred meters outside the periphery of rehab area TA 9-S. According to the location shown on the OSA topographic quadrangle and landmarks described on the state site form (Hanson 1961a), site 15Hd17 may have been in or near proposed rehab area in TA 6, but the lack of specific information on the site form prevented relocation of the site.

No archeological sites or standing structures listed on or eligible for listing on the National Register of Historic Places are located in or immediately adjacent to the current project areas.

V. SURVEY PREDICTIONS

Based on previous archeological research in the area, the history of settlement, and the environmental setting of the project area, the following results were expected:

- 1) Land Acquisition maps from 1919 depict the location of structures on the acquired and neighboring properties in all the proposed rehabilitation areas except those in Training Areas 3 and 6. The locations of most historic sites or potential historic sites, therefore, were known prior to the survey. The land acquisition maps also provide an end date (i.e., ca. 1919 or ca. 1940) for any historic sites discovered.
- 2) The installation removed most pre-installation standing structures for liability reasons, therefore, few historic structural ruins are expected.
- 3) Some of the survey areas consisted primarily of steep ridge slopes that are unlikely habitation loci.
- 4) The rehab areas on the tops and upper slopes of ridges have high potential for habitation in areas where water was readily accessible.
- 5) There is a higher probability of habitation sites near the major streams.
- 6) Studies elsewhere indicate frequent occupation around sinkholes, however, the presence of abundant flowing surface water in the vicinity lessens the importance of sinkholes as habitation loci.
- 7) Historic sites frequently also have prehistoric components, suggesting that some topographic characteristic made the location desirable to both prehistoric and historic inhabitants.
- 8) Most of the proposed rehab areas have been used for tank training areas, in some cases for decades. Sites found in these areas are likely to be wholly or partially disturbed.

VI. FIELD METHODS

In general, the proposed rehabilitation areas which had not been previously surveyed were systematically walked in transects at paced 10 m intervals. If the ground surface was obscured by vegetation for greater than 10 m within a transect, then a shovel probe was excavated. Most of the proposed rehab areas were or are used for tank training and the ground surface is eroded well into the subsoil. Visibility in these areas is very good, no features were observed during the walkover and it was not necessary to excavate shovel probes. Only rehab area TA-3 had extended vegetated areas that necessitated shovel testing in non-site areas. In order to increase the effective ground surface visibility in areas with dense ground cover, the denuded areas around bases of trees, animal paths and burrow openings, and other patches of open ground were carefully examined when available.

Each shovel probe excavated was approximately 30 cm square at ground surface and excavated to a depth of at least 30 cm, or until a sterile subsoil, bedrock, or large roots were encountered. The walls of each STP were scraped and inspected for evidence of archeological deposits. The fill from each shovel probe was trowel-sorted for artifacts or other evidence of potential archeological deposits (e.g., charcoal flecks).

Upon discovery of archeological materials, the ground surface of the area around the find was walked in transects spaced at 5 m intervals, until no additional materials were recovered for a distance of 20 m within a transect. Figures D-1 through D-23 in Appendix D depict the locations and plans of the cultural resources encountered in the proposed rehabilitation areas. The site plans show the testing methods and salient features of these sites in greater detail. The fill from shovel probes in the vicinity of potential sites was screened through one-quarter inch hardware cloth prior to backfilling of the tests, unless the soil was too clayey or too wet to screen. If the soil could not be screened, it was trowel sorted for cultural materials prior to backfilling.

In summary, the archeological investigation of the proposed rehabilitation areas resulted in the revisiting of four sites, the recording of 13 new sites and five isolated finds, and the unsuccessful attempt to relocate one previously recorded site. Sites 15Hd482 through 15Hd484 and Isolated Find 1 were recorded in rehab area TA 3; sites 15Hd485 through 15Hd487 were recorded in rehab area TA 6; site 15Md154 was revisited and sites 15Md336 and 15Md337 recorded in rehab area TA 8-N; site 15Md143 was revisited and Isolated Finds 2 and 3 recorded in rehab area TA 8-S; site 15Md163 was revisited in TA 9-S and its boundaries

extended into rehab area TA 8-S; site 15Md340 was recorded in rehab area TA 9-S; sites 15Md338 and 15Md339 were recorded in rehab area TA 9-N; sites 15Md341 and Isolated Find 4 were recorded in rehab area TA 9-W; site 15Md342 and Isolated Find 5 were recorded in rehab area in TA 10-S; and site 15Md175 was recorded in rehab area TA 10-N. Attempts to relocate 15Hd17 in or near rehab area TA 6 were unsuccessful. No sites were recorded in rehab areas in TA 9-E or TA 11. Rehab area TA 11 showed evidence of considerable previous disturbance due to the modification of the terrain to create the motor cross track and to obtain borrow fill for the construction of adjoining highways.

VII. ARTIFACT TYPOLOGY AND MATERIALS RECOVERED

The following paragraphs summarize the artifact typologies used in the sorting and analysis of the artifacts recovered during this project, and describe the artifacts recovered by site. The distribution of prehistoric artifacts by site is summarized in Table 1, and the distribution of historic artifacts by site is summarized in Table 2. The artifact inventory is in Appendix B.

Prehistoric Artifact Typology

Projectile Point

A projectile point is a bifacially worked chipped stone tool which is generally assumed to have been hafted for use as a hunting implement, such as a spear head or arrowhead. One Big Sandy projectile point, an Early to Middle Archaic point form (circa 8000-6000 B.C. [Justice 1987:60-63]), was recovered from each site 15Hd486 (Figure 5a) and site 15Md340 (Figure 5b). One Raddatz Side Notched projectile point, a Middle Archaic point form (circa 6000-3000 B.C. [Justice 1987:64, 67-69]), was found at site 15Md336 (Figure 5c). One Trimble Side Notched point, a Late Archaic point form (circa 2000-1000 B.C. [Justice 1987:130-131]), also was found at site 15Hd486 (Figure 5d). One non-diagnostic medial point fragment also was found at site 15Md336.

Biface

A biface is a chipped stone tool which has had flakes removed from two opposing sides along one or more edges. Two biface fragments were found at 15Hd482, three at 15Hd484 (Figures 6a-b), 15 biface fragments were recovered from 15Hd486 (Figures 6c-g), one fragment was found at 15Md336, and one fragment was recovered from 15Md163 (Figure 6h).

Scraper

A scraper is a chipped stone tool formed by the removal of a continuous series of steep flakes from a single surface of a tool. Those tools with flakes removed along one or both sides are referred to as side scrapers, and those with flakes removed from the end of the tool are labeled end scrapers. Occasionally one or both sides and the end were used for scraping. Such implements were used for working a variety of materials. Those with rounded ends are believed to have been used for scraping hides and other soft, penetrable materials. Side scrapers are believed to have been used on harder materials, such as wood and bone. One pos-

Table 1. Inventory of Prehistoric Artifacts.

| | <u>Hd</u> <u>482</u> | <u>Hd</u> <u>483</u> | <u>Hd</u> <u>484</u> | <u>Hd</u> <u>485</u> | <u>Hd</u> <u>486</u> | <u>Hd</u> <u>487</u> | <u>Md</u> <u>143</u> | <u>Md</u> <u>163</u> | <u>Md</u> <u>175</u> | <u>Md</u> <u>336</u> | <u>Md</u> <u>338</u> | <u>Md</u> <u>339</u> | <u>Md</u> <u>340</u> | <u>Md</u> <u>341</u> | <u>Md</u> <u>342</u> | <u>IF</u> <u>1</u> | <u>IF</u> <u>3</u> | <u>IF</u> <u>4</u> | <u>IF</u> <u>5</u> | <u>Total</u> |
|-----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------|
| Projectile point | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Biface | 2 | 0 | 3 | 0 | 15 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| Scraper | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 5 |
| Uniface | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| Utilized chert debitage | | | | | | | | | | | | | | | | | | | | |
| Secondary flake | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Tertiary flake | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| Chert shatter | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Unutilized chert debitage | | | | | | | | | | | | | | | | | | | | |
| Primary flake | 1 | 0 | 0 | 1 | 5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Secondary flake | 0 | 3 | 1 | 16 | 43 | 2 | 7 | 0 | 15 | 3 | 2 | 4 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 101 |
| Tertiary flake | 0 | 0 | 4 | 9 | 65 | 2 | 18 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 8 | 1 | 1 | 0 | 1 | 114 |
| Chert shatter | 0 | 0 | 1 | 7 | 53 | 0 | 16 | 3 | 3 | 5 | 2 | 4 | 0 | 2 | 8 | 0 | 0 | 1 | 0 | 105 |
| Blocky chert piece | 0 | 0 | 0 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| Core/battered chert cobble | 2 | 0 | 0 | 0 | 10 | 0 | 1 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 18 |
| Groundstone tool | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| TOTAL PREHISTORIC ARTIFACTS | 5 | 3 | 9 | 33 | 218 | 4 | 46 | 5 | 23 | 13 | 4 | 11 | 4 | 3 | 23 | 2 | 1 | 2 | 1 | 410 |

Table 2. Inventory of Historic Artifacts.

| | <u>Hd</u> | <u>Md</u> | <u>Md</u> | <u>Md</u> | <u>Md</u> | <u>Md</u> | <u>Md</u> | <u>IF</u> | <u>Total</u> |
|---------------------------------|------------|------------|------------|------------|------------|------------|------------|-----------|--------------|
| | <u>487</u> | <u>154</u> | <u>163</u> | <u>336</u> | <u>337</u> | <u>341</u> | <u>342</u> | <u>2</u> | |
| KITCHEN GROUP | | | | | | | | | |
| Ceramic | | | | | | | | | |
| Earthenware | | | | | | | | | |
| Whiteware | 1 | 4 | 0 | 31 | 31 | 1 | 1 | 0 | 69 |
| Redware | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 |
| Yellowware | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Other | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 1 | 17 |
| Stoneware | 0 | 0 | 0 | 3 | 15 | 0 | 0 | 0 | 18 |
| Porcelain | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 4 |
| Glass, bottle | 0 | 0 | 0 | 3 | 10 | 2 | 2 | 0 | 17 |
| Glass, dish | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 4 |
| Glass, lid liner | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Glass, unidentified | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 |
| Kitchen Group Total | 1 | 4 | 1 | 49 | 71 | 4 | 3 | 2 | 135 |
| ARCHITECTURAL GROUP | | | | | | | | | |
| Brick | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Glass, flat (window) | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 5 |
| Architectural Group Total | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 6 |
| ACTIVITIES GROUP | | | | | | | | | |
| Toys | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Misc. hardware | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Tools | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Activities Group Total | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 3 |
| TOTAL HISTORIC MATERIALS | 1 | 4 | 1 | 49 | 79 | 5 | 3 | 2 | 144 |

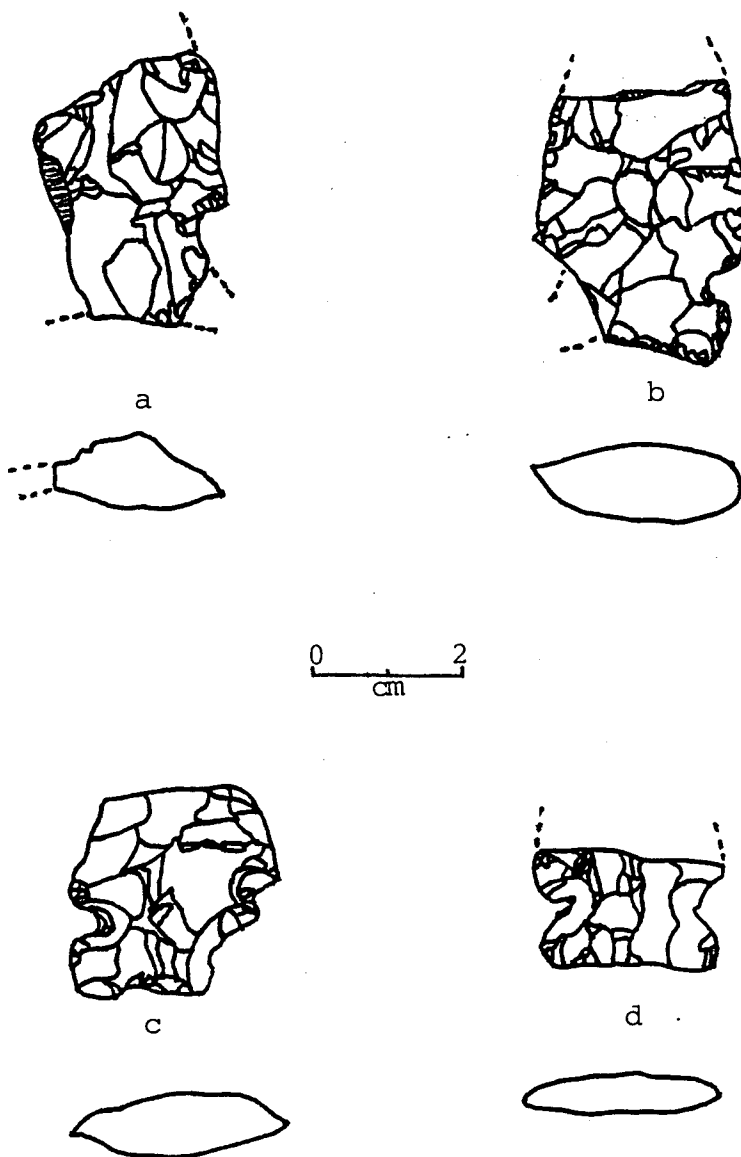


Figure 5. Projectile Points.

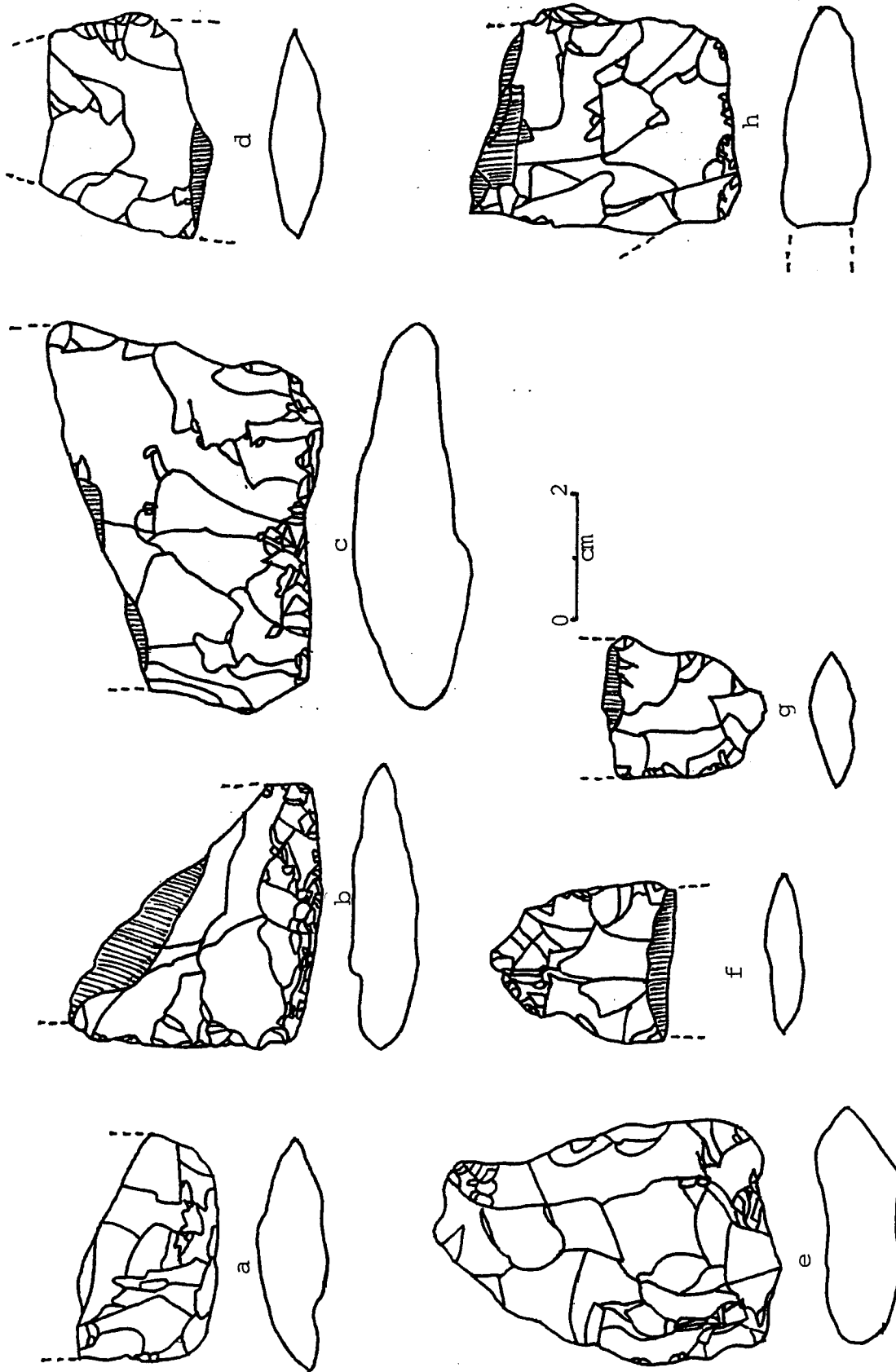


Figure 6. Bifaces.

sible end scraper fragment was found as Isolated Find 1, one side scraper was recovered from 15Hd486 (Figure 7a), one end scraper was found on site 15Md336 (Figure 7b), one end/side scraper was recovered from site 15Md342 (Figure 7c), and one end scraper was found on 15Md163.

Uniface

A uniface is a chipped stone tool formed by the removal of flakes from a single face only along one or more edges, and generally is made on a flake. One unifacial cutting tool was recovered from 15Hd486 (Figure 7d) and one was found on 15Md341 (Figure 7e).

Chert Debitage

Chert debitage is a catchall category used to describe the material generally created as a by-product in the manufacture of more formally defined chipped stone tools. Chert debitage is ubiquitous on most prehistoric archeological sites. Chert debitage may be further divided into the categories of flakes, blocky chert pieces, and chert shatter. It may also be classified by stage of manufacture and by evidence for use as an informal, or expedient, tool. The following criteria have been applied to sort the chert debitage collected in this study:

- 1) Flakes are defined by the presence of a striking platform and bulb of percussion. Concentric rings or ripple marks on the ventral surface, and feather terminations may also be present. Flakes are classified as primary flakes if 90 percent or more of the dorsal surface (the side opposite the bulb of percussion) is covered by cortex or rind; as secondary flakes if one to 90 percent of the dorsal surface is covered by cortex; and as tertiary flakes if no cortex is present on the dorsal surface.
- 2) A chert piece is classified as shatter if it is a flat, generally small, piece exhibiting some flake-like characteristics, but is insufficiently complete to classify the piece as a primary, secondary or tertiary flake.
- 3) A blocky chert piece is an angular chert piece lacking flake-like characteristics, and lacking evidence of having served as a core.
- 4) A piece of chert debitage is classified as utilized if at least three contiguous small flakes have been removed from one or more edges by use rather than retouch.

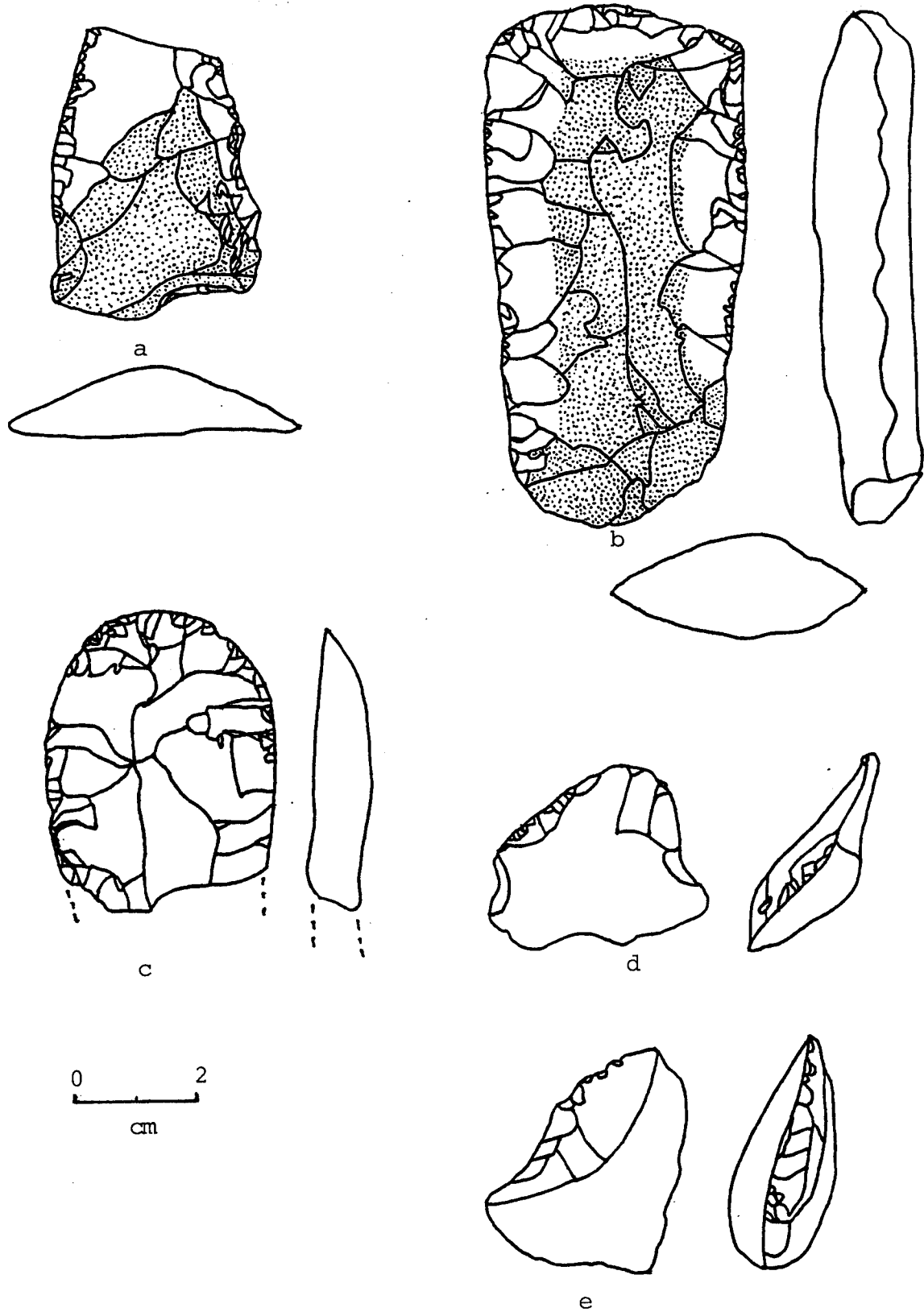


Figure 7. Scrapers and Unifaces

- 5) A piece of chert debitage is classified as unutilized if it exhibits no evidence of the removal of small flakes through use.

Core

A core is chert cobble or tabular piece of chert from which flakes have been removed for later modification or use as tools. A tested cobble is a piece of chert raw material that was flaked to ascertain its suitability for use in manufacture of tools. These two types of artifacts are often indistinguishable and are grouped in this discussion. Two tested cobbles were recovered from 15Hd482, three tested cobbles were recovered from 15Md175, 10 tested cobbles were found at 15Hd486, and one tested cobble was found at each 15Md143, 15Md339, and 15Md342.

Groundstone

Groundstone tools, generally, are made from fine-grained sandstone, siltstone, metamorphic or igneous rock. Frequently, these are water-worn cobbles or tabular pieces that are adapted for use as hammerstones, grinding stones, or anvil stones. A pitted stone, referred to as a nutting stone because of the implied use as an anvil for cracking nuts, was recovered from site 15Md342 (Figure 8).

Historic Artifact Typology

Historic artifacts were analyzed using Cleland's (1983) artifact identification manual. The historic artifacts are listed in Table 2 grouped in the artifact classes defined by South (1977:95-96). Only three of South's artifact groups (kitchen, architectural, and activities) are represented among the historic artifacts recovered or observed during this project.

KITCHEN GROUP

Ceramics

Ceramics fall under the kitchen artifact group. Earthenware and stoneware are distinguished primarily on the basis of permeability and hardness of paste. Earthenware has the most permeable paste, while stoneware has a nearly impermeable paste. Porcelain has an impermeable paste (Cleland 1983: 27, 43). Whiteware, redware, and yellowware are forms of earthenware, with the name of the ware derived from the color of the paste. Other colors of paste are possible for

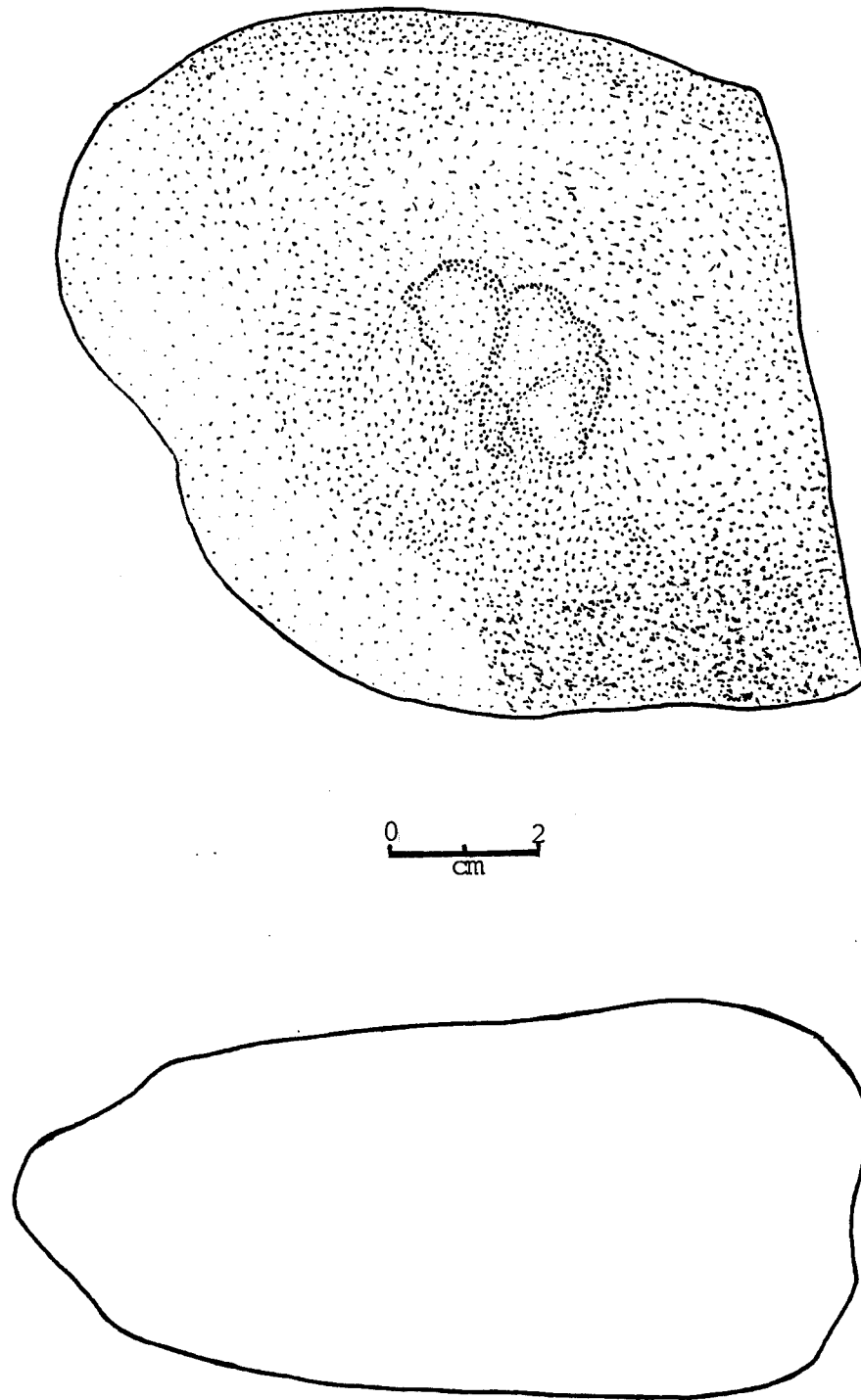


Figure 8. Pitted Stone.

earthenware (e.g., tan, gray, or brown), but are lumped into the category "other" earthenware because they are less common and have more variation in color.

Whiteware. A total of 64 whiteware sherds were collected from the project sites. Unless specified otherwise, the sherds have white glaze on the interior and exterior surfaces and lack other decoration.

One whiteware sherd was recovered from 15Hd487. It is too small to identify the vessel form.

Four whiteware sherds were recovered from 15Md154. One is a plate base, and one is a plate rim. The other two are too small to identify the vessel type.

A total of 31 whiteware sherds were recovered from 15Md336. Two are plate body sherds, one is cup body sherd, and eight are body sherds which are too small to determine vessel type. One is a body sherd from a curved vessel which has been badly charred. Two are body sherds which refit and are from a vessel with relief decoration. Two are small body sherds with a painted polychrome tea leaf decoration (Figure 9a). One is a portion of the handle from a piece in a tea set. The handle has both relief and impressed decoration, and probably had gilt decoration, although none is now present. Six are plate rims. Seven are plate base sherds. One is a plate base sherd which has a very small portion of a makers mark, which was too small to identify or depict. Several of the whiteware sherds from 15Md336 had slight staining which may be the remains of transfer print decorations, but could also be due to post-depositional processes.

A total of 31 whiteware sherds were recovered from 15Md337. Two are plate base sherds with makers marks (Figure 9b-c). The makers mark shown in Figure 9b was used by the Homer Laughlin China Company ca. 1897-1904 (Lehner 1988:245, 247-248). The makers mark shown in Figure 9c is a portion of the lion-crest-unicorn design used by numerous British and American firms in the late nineteenth and early twentieth centuries. Four are bases from large bowls or serving vessels. One is a plate base sherd with partially exfoliated surfaces. One is a heavily charred bowl base. Six are undecorated body sherds which have been fire-damaged. Ten are undecorated body sherds. One is a heat-damaged body sherd, probably from a bowl, with relief decoration on the exterior surface. One is a plate body sherd with an aqua tinged area on both surfaces, but it could not be determined if this was meant to be decoration or was due to post-depositional processes. One is the rim of a teapot or coffeepot. Three are rim sherds -- one from a bowl or mug and two from plates. One is a plate rim with a charred dark band at the rim which appears to be where a decorative band burned. It is suspected that several of the sherds described as undecorated

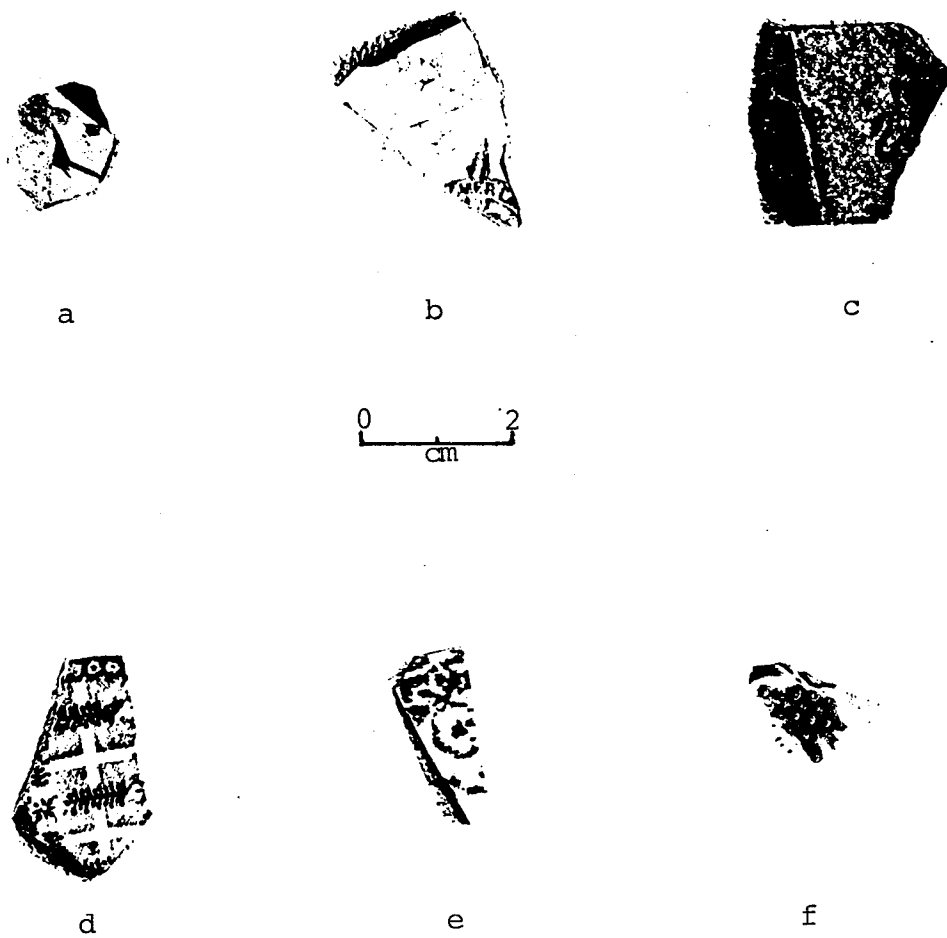


Figure 9. Historic Ceramics.

were originally decorated with transfer prints, but that the glaze burned off.

One whiteware sherd was recovered from 15Md341. It is from a plate base, and the base surface is missing.

One whiteware sherd was recovered from 15Md342. It is a plate rim with a cobalt transfer print (Figure 9d). It has a single band of small flowers at the rim, and, below the rim, a rectangular arrangement of floral garlands superimposed on a background of cobalt squares. The body of the plate probably would have had a transfer print of a romanticized pastoral scene.

Redware. Two redware sherds were recovered in this project. One redware sherd was recovered from 15Md341. It has dark brown glaze interior and a mottled red and gray salt glaze exterior. One redware sherd was found at Isolated Find 2. It has dark brown glaze exterior and interior.

Yellowware. One yellowware sherd, from 15Md337, was recovered in this project. It is a rim, probably from a bowl, with mocha decoration on the body exterior and interior and a mocha band below the rim exterior.

Other. A total of 17 other paste earthenware sherds were recovered in this project. Eight sherds were recovered from each 15Md336 and 15Md337 and one was recovered at Isolated Find 2.

One of the eight other paste earthenware sherds from 15Md336 has a reddish-gray paste, a brown matte glaze on the interior and gray glaze on the exterior. One has tan paste with brown glaze interior and exterior. One has tan paste with brown glaze interior, and tan glaze exterior with blue lettering "...s. S [or 8]..." over "W...", which is insufficient to decipher the phrases. Four are from a single crock with tan paste, brown glaze interior, tan glaze exterior, and bisque base.

One of the eight other paste earthenware sherds from 15Md337 has tan paste, and is from the base of a large bowl. The exterior surface has white glaze, and the interior surface is too charred to determine the original glaze color. One body sherd has reddish-tan paste and medium brown glaze interior and exterior. One sherd has tannish-gray paste and dark brown glaze interior and exterior. Four sherds, probably from a single crock, have gray paste, but the sherds are too charred to determine the exterior and interior glaze colors. One has gray paste and is a handle with a matte gray finish.

The one other paste earthenware sherd recovered at Isolated Find 2 has tan paste. It has dark brown glaze interior and tan salt glaze exterior.

Stoneware. A total of 18 stoneware sherds were recovered in this project. Three are from 15Md336 and 15 are from 15Md337.

Three stoneware rims were recovered from 15Md336, all probably from plates. One has an impressed band below the rim, which probably contained a gilt or painted band at one time.

Three of the stoneware sherds from 15Md337 are plate or saucer base sherds -- two from one vessel. Four are undecorated body sherds, probably from plates. One is a body sherd and one a rim sherd which refit and are from a cup. Both are heavily charred. Five are rim sherds -- two from cups, two from plates, and one from a bowl or mug. One of the plate rims has relief decoration and a scalloped rim, and one of the cup rims has a slight indentation below the rim which probably once contained a gilt or painted band. This rim sherd is heat-damaged. One is a plate body sherd with a hand painted floral design on the plate body (Figure 9e).

Porcelain. A total of four porcelain dish sherds were recovered from the project sites -- one from 15Md163 and three from 15Md337. Only one surface is present on the sherd from 15Md163. The sherd is relatively thick, and probably derives from a teapot or other similar vessel. One of the three porcelain sherds from 15Md337 is a base sherd from a plate or shallow bowl with relief fluting on the interior of the body. One is a body sherd from a curved vessel with fluting on the exterior surface. One is a fragment, possibly from a lid, with decorative white raised dots (Figure 9f). The decorated surface has a blue tinge to it, but it could not be determined if this was decoration or a result of charring.

Glass

Glass kitchen artifacts are divided into three main categories -- bottles, dishware, and canning jar lid liners. A fourth category "unidentified" consists of glass fragments for which it could not be identified whether the piece was from a dish or a bottle.

Bottle glass. Eighteen bottle glass fragments were recovered in this project. Two were recovered from each 15Md341 and 15Md342, three from 15Md336, and 10 from 15Md337.

Three aqua bottle glass fragments were recovered from 15Md336. Two are probably from canning jars. One is a lighter tinge, and is probably from a medicine or soda bottle.

Five of the 10 bottle glass pieces from 15Md337 are aqua. Three are the shade of aqua often used for canning jars. The fourth aqua piece is a lighter tint, and is from a round bottle base. The fifth is a base of a large oval bottle. Four of the bottle glass pieces are solarized amethyst, indicating a date of ca. 1880 to 1924 (Hardesty 1987:40). One is from a panelled bottle, probably from a medicine bottle. One piece of green bottle glass is lettered, but it is sufficiently melted that the lettering could not be read.

The two bottle glass fragments from 15Md341. One is a bottle neck and rim fragment. It has a yellowish tinge to it, but it could not be determined if this is due to post-depositional processes. The second piece is an aqua bottle base. It has a pontil mark on the base, and is slightly melted.

The two bottle glass fragments from 15Md342 consist of one aqua fragment and one clear fragment. The aqua fragment is a portion of an indented panel, probably from a medicine bottle.

Dish glass. A total of four fragments of dish glass were recovered in this project. Three are from 15Md336 and one is from 15Md337.

Three fragments of solarized amethyst dish glass were recovered from 15Md336. One is a fragment of a tumbler with fluted relief decoration. One is from a pressed glass vessel, but the piece is too small to identify the vessel form or the pressed glass pattern. One is a fragment from a vessel of indeterminate form.

One fragment of green dish glass was recovered from 15Md337. It is pressed glass with a fluted design.

Lid liner. One fragment of a milk glass lid liner was recovered from 15Md336.

Unidentified. Two milk glass fragments were recovered from 15Md337. It could not be determined if these were bottle or dish glass.

ARCHITECTURAL GROUP

Brick

One brick fragment was recovered in this project. It is from 15Md337.

Flat (window) glass

A total of five pieces of flat, or window, glass were recovered in this project. One piece of green flat glass was recovered from 15Md341. Four pieces of green flat glass were recovered from 15Md337.

ACTIVITIES GROUP

Toys

One toy was recovered in this project. It is the base of a porcelain toy teapot from 15Md337.

Miscellaneous Hardware

One piece of miscellaneous metal hardware was recovered from 15Md337. It is light for its size and may be part of the decorative ironwork from a sewing machine stand.

Tools

One tool, the complete blade cross-cut saw, was recovered from 15Tr337. It is a two-person saw.

VIII. CULTURAL RESOURCES

The UTM coordinates of the cultural resources inspected are in Appendix C. The site locations are shown in Figures D-1 through D-4, site plans are Figures D-5 through D-25, and soil profiles are Figures D-26 and D-27, in Appendix D.

Sites Not Relocated

15Hd17

Site 15Hd17 was recorded by Lee Hanson while he was at Fort Knox for ROTC training in 1961. It was apparently discovered while he was on maneuvers. The reported site location, as marked on the topographic quadrangles at the OSA (Figure D-2), was walked at 5 m intervals. Natural chert chunks and flakes caused by tanks or weathering were abundant, but no artifacts were observed.

There are a number of discrepancies between the topographic and cultural features recorded on the site form and the features observed in the field. Hanson (1961a) describes the soils as alluvial, but the site is mapped as lying on a ridge top. An unscaled site plan depicts a bleacher located near the site, but none is present in this area of the training area. The vegetation is described as woods, but the area is devoid vegetation. A large sinkhole is present near the supposed site location, but is not shown on the site plan. The site is described as 500 m northwest of 15Hd18, but 15Hd18 was determined by Schenian and Mocas (1992) to be mismapped on the OSA quadrangles. The road pattern in this vicinity is different from the one depicted on the site plan. The area is described as having foxholes, but foxholes are not excavated in tank training areas.

The following alternative hypotheses are offered in explanation of the lack of success in relocating 15Hd17:

1. The site actually existed at this location and was destroyed and/or buried by the grading of the ridge crest and the laying of gravel. The unscaled plan view suggests that the site was not immediately adjacent to the paved road, however, so it should not have been impacted by the construction of the parking area.
2. The site location marked on the OSA quadrangles is incorrect, and 15Hd17 exists at some unknown location. Since Hanson uses a benchmark and another point which could not be found on any available edition of the Vine Grove quadrangle or of the installation maps, a site which also

could not be relocated, a stream which has many curves, and an unnamed road as reference points, it is unlikely that a site could ever be positively identified as 15Hd17.

3. The chert pieces observed by Hanson were actually natural, rather than cultural, and 15Hd17 actually never existed as a site. Since Hanson did not collect any artifacts, it is not possible to examine the materials he observed to confirm their identification as cultural.

Sites Revisited

15Md143

Site 15Md143 was recorded by O'Malley et al. (1980:115-116) (Figures D-3 and D-5). It was described as a lithic scatter of indeterminate prehistoric cultural-temporal affiliation with scattered historic debris. O'Malley et al. collected 168 prehistoric artifacts and 19 historic artifacts from the site. Additional flakes were observed by the O'Malley et al. field crew, but not collected, according to the site form. A 1 m x 1 m concentration of lithic debitage was found on the west side of Pinwheel Road, according to the site form, but it is not mentioned in the final report. The site was known to extend east of Pinwheel Road, but apparently this side was not collected during the O'Malley et al. study, due to training activities.

Reexamination of 15Md143 resulted in the recovery of 42 prehistoric artifacts on the east side of the road and three on the west side of the road. Examination of the area west of Pinwheel Road had to be limited to within 30 m of the road, because a unit was having its first lesson in tank training, and it was not safe to go farther west. On the east side of the road, 43 prehistoric artifacts were found over a 50 m north-south by 40 m east-west, or 2000 m², area. The site is located in the uplands at the edge of a karstic plain approximately 200 m west of Gander Branch and 300 m southeast of Otter Creek. Portions of the area east of Pinwheel Road were vegetated in pines and grass, with extremely variable ground surface visibility. The roadcut adjoining Pinwheel Road had 100 percent ground surface visibility, as did several large gullies in the northeast quarter of the site. The roadcut and gullies were examined for evidence of cultural features, but none were observed. Eight shovel tests were excavated in the site area. One yielded one piece of chert debitage from the plowzone, but none of the tests contained evidence of potential subplowzone deposits.

The area west of Pinwheel Road appeared to have been borrowed for road fill for improving and berming the adjoin-

ing section of Pinwheel Road. All areas inspected west of the road were either excavated to subsoil or covered with fill. The three artifacts found west of the road were all found in gullies along the road berm.

Site 15Md143 is not eligible for the National Register due to the lack of intact or potentially intact cultural deposits and evidence for previous disturbance. No diagnostic artifacts were found in the current survey, so the prehistoric component remains of indeterminate prehistoric temporal-cultural affiliation. No evidence was found of the historic component in the current study. No additional archeological investigation is recommended for 15Md143.

15Md154

Site 15Md154 was recorded by O'Malley et al. (1980:110) (Figures D-3 and D-6). It was described as having a prehistoric component which was a lithic scatter of indeterminate prehistoric cultural-temporal affiliation, and a historic component, probably dating to the late nineteenth to early twentieth century. O'Malley et al. collected 30 prehistoric artifacts and 14 historic artifacts from the site. Both components were described as heavily disturbed by bulldozer activity.

During the current study, four historic artifacts were collected from the site, but no prehistoric artifacts were observed. The materials were collected over a 30 m (north-south) by 10 m (east-west), or 300 m², area. The site is located on a gently sloping area on a north ridge slope 200 m southeast of an intermittent tributary of Otter Creek. Most of the ridge slope was eroded to subsoil, a bulldozer/tank trail bisected the ridge slope, and deep erosional gullies bordered the site to the east and west. Three of the artifacts were found in the bulldozer/tank trail, and one on the adjoining eroded slope. Ground surface visibility was nearly 100 percent on the trail, and approximately 75 percent on the remainder of the slope, which was in dry weeds and scrub growth.

No shovel tests were excavated at 15Md154, because the site area was eroded to subsoil and no evidence of potential intact cultural deposits was observed on the ground surface, in the cutbanks adjoining the trail, or in nearby erosional gullies. The ridge slope was narrow in the site vicinity area, and it was felt that the cutbanks and gully provided adequate exposures of subsurface soil profiles.

Site 15Md154 is not eligible for the National Register due to the low artifact content, the lack of evidence for intact cultural deposits, and previous disturbance due to bulldozing and severe erosion. No prehistoric artifacts were found in the current study, so the site remains of indeter-

minate prehistoric cultural-temporal affiliation. No additional archeological work is recommended for 15Md154.

15Md163

Site 15Md163 was recorded by O'Malley et al. (1980:119) (Figures D-3 and D-7). It was described as a lithic scatter of indeterminate prehistoric cultural-temporal affiliation. According to the site form, the O'Malley et al. field crew observed artifacts on the ground while hurriedly leaving the training area as tank units prepared to use tear gas. No collections were made in the O'Malley et al. study, and the boundaries of the site were not known.

Reexamination of the area during the current survey resulted in the recovery of five prehistoric and four historic artifacts over a 50 m (east-west) by 40 m (north-south), or 2000 m², area. All but one of the materials were found east of Pinwheel Road. The area east of Pinwheel Road consisted of several islands of vegetation separated by tank trails eroded up to 3 m into the subsoil. Ground surface visibility was 100 percent in the tank trails and averaged 50 percent in the vegetated areas. The area west of Pinwheel Road is an upland karstic plain used for tank training. The site area indicated in O'Malley et al. is eroded to subsoil, and the southwest portion has been borrowed for fill to at least 1 m below the original ground surface. The tank training area had sparse, dry weeds, and ground surface visibility was 100 percent. The reported site area was walked at 5 m intervals, but the only artifact recovered west of Pinwheel Road was discovered approximately 1 m from the edge of the road.

No shovel tests were excavated at 15Md163 because most of the site area was eroded to subsoil and no evidence of potential intact cultural deposits was observed on the ground surface or in the cutbanks adjoining the tank trails. It was felt that the cutbanks and gully provided adequate exposures of subsurface soil profiles in the area east of Pinwheel Road. The area west of Pinwheel Road was completely eroded to subsoil, and no evidence of potential cultural deposits was observed in this area.

Site 15Md163 is not eligible for the National Register, due to the low artifact count, the lack of evidence for intact or potential intact cultural deposits, and the evidence for previous disturbance due to tank training and borrowing. The western extent of the site as reported in O'Malley et al. could not be confirmed, because the site area had been borrowed in the time between the two surveys. It is likely that some of the lithic material observed by the O'Malley et al. crew was natural chert chunks or flakes created by tanks. No additional archeological work is recommended for 15Md163.

15Md175

Site 15Md175 was recorded by O'Malley et al. (1980: 78-79) (Figures D-4 and D-8). It was described as an isolated find (one marginally modified flake) of indeterminate prehistoric cultural-temporal affiliation. The area was in grass and scattered trees, with 50 to 75 percent ground surface visibility, at the time of the O'Malley study.

At the time of the current survey, the site area had 100 percent ground surface visibility with only limited patches of dry sparse weeds. A total of 23 lithic artifacts were recovered in a 30 m (east-west) by 20 m (north-south), or 600 m², area on the top and west slope of a low hill bordering the southwest side of a sinkhole in the gently rolling uplands at the northern edge of a karst plain. The entire site area was eroded or deflated to subsoil. No shovel tests were excavated at 15Md175, because no evidence of features or potential features was observed on the ground surface.

Site 15Md175 is not eligible for the National Register due to the low artifact content, the indeterminate cultural-temporal affiliation, the lack of evidence of intact subsurface features, and the evidence for erosion and deflation of the site vicinity. No additional archeological work is recommended for 15Md175.

Previously Unrecorded Sites Inspected

15Hd482

Site 15Hd482 is a lithic scatter of indeterminate prehistoric cultural-temporal affiliation (Figures D-1 and D-9). It is located at an elevation of 740 feet on the south slope of a hill located 200 m northeast of an unnamed intermittent tributary of Dorrets Run, 700 m east of Dorrets Run, and 300 m west of an intermittent tributary of Cedar Creek. The site is located in a tank training range, and some of the tank tracks are rutted 1 m or more below the ground surface. A road cutbank was available for examination of the soil profile for the length of the site, and no evidence was found of features or artifact concentrations. Soils in the site area are Nicholson silt loam, with two to six percent slopes. Vegetation in the site vicinity consisted of patchy dry grasses and weeds, small pines and deciduous saplings. Ground surface visibility was 100 percent in the road bed, and 50 percent in the vegetated areas. A shovel probe on the vegetated slope adjacent to the gully had a thin (10 cm) topsoil zone, and yielded no artifacts. Artifacts were recovered from a 100 m (east-west) by 20 m (north-south), or 2,000 m², area. A total of five artifacts were recovered from 15Hd482.

Site 15Hd482 is not eligible for the National Register, because it has been heavily damaged by tank training and severe erosion, because it is of indeterminate prehistoric cultural-temporal affiliation, and because there was no evidence of intact or potentially intact subsurface cultural deposits. No additional archeological work is recommended for 15Hd482.

15Hd483

Site 15Hd483 is a lithic scatter of indeterminate prehistoric cultural-temporal affiliation (Figures D-1 and D-10). It lies at an elevation of 720 feet on the northeast slope of a hill located 30 m southeast of an unnamed intermittent tributary of Dorrets Run, 660 m east of Dorrets Run, and 500 m west of an intermittent tributary of Cedar Creek. The site is located in a tank training range, and the tank trail forming the east boundary of the site is rutted more than 1 m below the ground surface. Soils in the site area are Vertrees silty clay loam, with six to 20 percent slopes, severely eroded. The vegetation consisted of patchy dry grasses and weeds, pines, and deciduous saplings. Ground surface visibility was 100 percent in the road bed, and 50 percent elsewhere. No features or artifact concentrations were noted in the road cutbank. A shovel test in the vegetated area north of the tank trail had a thin (10 cm) topsoil zone, and yielded no artifacts. Artifacts were recovered from a 10 m (east-west) by 5 m (north-south), or 50 m², area. A total of three pieces of unutilized lithic debitage were recovered.

The site is not eligible for the National Register, because it has been damaged by tank training and severe erosion, because it is of indeterminate prehistoric cultural-temporal affiliation, because it has a low artifact count, and because there was no evidence of intact or potentially intact subsurface cultural deposits. No additional archeological work is recommended for 15Hd483.

15Hd484

Site 15Hd484 is a lithic scatter of indeterminate prehistoric cultural-temporal affiliation (Figures D-1 and D-11). It is located at an elevation of 760 feet on the top, and north, east, and south slopes of a northeast-oriented ridge. The site is located 300 m northwest of an unnamed intermittent tributary of Cedar Creek, 400 m southwest of another intermittent tributary of Cedar Creek, and 660 m east of Dorrets Run. The site lies in a tank training range. A tank trail borders the site on the east and is eroded to more than 1 m below ground surface. The surface of the site is criss-crossed with tank tracks, and gullies have

formed on the slopes. Although some topsoil remains on the site, it is present only in small patches, and is generally disturbed and intermixed with subsoil. Vegetation consisted of patchy weeds and grasses, with 50 to 100 percent ground surface visibility. Soils in the site area are Vertrees silty clay loam, six to 20 percent slopes, severely eroded. Artifacts were recovered from a 60 m (north-south) by 50 m (east-west, or 3,000 m², area. A total of nine artifacts were recovered from the site.

Site 15Hd484 is not eligible for the National Register, because it has been damaged by tank training and erosion, because it is of indeterminate prehistoric cultural-temporal affiliation, because it has a low artifact count, and because there was no evidence of intact or potentially intact subsurface cultural deposits. No additional archeological work is recommended for 15Hd484.

15Hd485

Site 15Hd485 is a lithic scatter of indeterminate prehistoric cultural-temporal affiliation (Figures D-2 and D-12). It is located at an elevation of 670 feet on the east slope of a small hill overlooking the juncture of an unnamed permanent tributary of Mill Creek and an intermittent stream. The permanent stream is located 40 m east of site, the intermittent stream is located 80 m northwest, and a sinkhole is located 200 m southwest. The site is located in a tank training range. The hill top and slopes have been severely eroded, and only a small patch (20 m x 7 m) of vegetation remained. Ground surface visibility was 100 percent, except in the 20 m x 7 m vegetated area where visibility was 50 percent. Vegetation consisted of patchy dry grasses and weeds, a few small pines, and deciduous saplings. Soils in the site vicinity are Nicholson silt loam, with two to six percent slopes. All artifacts were recovered from the eroded cutbank and tank trail below and east of this vegetated area. Artifacts were recovered from a 10 m (east-west) by 5 m (north-south), or 50 m², area. A total of 33 artifacts were recovered -- all unutilized debitage. Three shovel tests excavated in the vegetated area yielded no artifacts, and two showed disturbed, eroded soil profiles. No soil stains were noted in the denuded areas on the hill top and slopes adjoining the vegetated area.

Site 15Hd485 is not eligible for the National Register, because it has been heavily damaged by tank training and severe erosion, because it is of indeterminate prehistoric cultural-temporal affiliation, because it has a low artifact count, and because there was no evidence of intact or potentially intact subsurface cultural deposits. No additional archeological work is recommended for 15Hd485.

15Hd486

Site 15Hd486 is an open habitation site with an Early to Middle Archaic and a Late Archaic component (Figures D-2 and D-13). The site is located at an elevation of 660 feet on the top and northeast slope of a northwest oriented ridge overlooking the juncture of two unnamed permanent tributaries of Mill Creek. One permanent stream is located 50 m east of the site, another is located 80 m west, and a sinkhole is located 400 m south. The site is located in a tank training range. The ridge top and slopes have been eroded -- the slopes severely, the ridge top limited to moderately. Ground surface visibility is 100 percent, except in a limited vegetated area where visibility was 25 percent. Soils in the site vicinity are Vertrees silty clay loam, with six to 20 percent slopes, severely eroded. Vegetation consisted of patchy dry grasses and weeds, a few small pines and deciduous saplings. Two patches of vegetation remain on the ridge top. One is 20 m x 5 m and one is 10 m x 10 m. Two shovel tests in the vegetated areas yielded evidence of intact topsoil and possible midden deposits to a depth of up to 34 cm below ground surface. One shovel test yielded four artifacts. Artifacts were recovered from the surface of a 75 m (north-south) by 50 m (east-west), or 3750 m², area. A total of 218 artifacts were recovered. One point is a Big Sandy point, an Early to Middle Archaic point type, and one is a Trimble Side Notched point, a Late Archaic point type.

Site 15Hd486 is considered potentially eligible for the National Register, despite tank damage and severe erosion on the lower slopes because there are probable intact midden deposits in the limited vegetated areas on the ridge top. The high artifact density, the presence of numerous formal tools, and probable midden deposits suggest that this was a base camp and that intact cultural features may exist in the remaining vegetated areas. Additional archeological investigation is recommended for 15Hd486.

15Hd487

Site 15Hd487 is a lithic scatter of indeterminate prehistoric cultural-temporal affiliation (Figures D-2 and D-14), which also contained a historic isolate. The site lies at an elevation of 670 feet on a northeast-oriented ridge crest overlooking the juncture of several tributaries of Mill Creek. The closest intermittent drainage is located 2 m west of the site, and a sinkhole is located 80 m south-east. The site is located in a tank training range, and the area in which it is located has been eroded to subsoil. Ground surface visibility was 100 percent. Soils in the site vicinity are Nicholson silt loam, two to six percent slopes. Vegetation was limited to moss and very short grass. The drainage west of the site has formed a gully up to 3 m deep. A total of five artifacts (four prehistoric and one his-

toric) were collected from the ground surface of a 5 m (east-west) by 5 m (north-south), or 25 m², area. No shovel tests were excavated, because no areas of intact topsoil were observed, and no soil stains were noted in the gully or in the site area.

Site 15Hd487 is not eligible for the National Register, because it has been heavily damaged by tank training and severe erosion, because it is of indeterminate prehistoric cultural-temporal affiliation, because it has a low artifact count, and because there was no evidence of intact or potentially intact subsurface cultural deposits. No additional archeological work is recommended for 15Hd487.

15Md336

Site 15Md336 has a Middle Archaic and a late nineteenth to early twentieth century historic component (Figures D-3 and D-15). The main part of the site is located in a 60 m long (north-south) by 50 m wide (east-west) area between the 740 and 760 foot contour intervals on the upper slopes of a southwest-oriented ridge system. A tributary of Otter Creek lies 100 m east and about 80 feet lower than the main part of the site. This portion of the site had been used as a tank turnaround. It still had some topsoil left in patches, although other areas were deflated or rutted to subsoil. The areas with topsoil had scrub growth. There were some pools of standing water in ruts. Ground surface visibility was 100 percent on the tank trails and 50 percent or more in scrub areas. Twelve prehistoric artifacts and five historic artifacts were recovered from the main site area.

It appeared that the bulldozing of the site area and the use of tank trails on the slope had smeared materials from the site over a considerable area (240 m by 100 m). A concentration of approximately 40 historic artifacts and one piece of chert shatter were found in a 30 m long by 5 m wide stretch of the trail at the south end of the site, but additional prehistoric and historic artifacts were found singly at 10 to 20 m intervals between this concentration and the main site area. The concentration and all of the materials found between the concentration and the main site area were in areas eroded or deflated to subsoil.

Altogether a total of 13 prehistoric and 49 historic artifacts were recovered from all areas of the site. The prehistoric artifacts include one Raddatz Side Notched point fragment, a Middle Archaic point type. A few additional tiny whiteware sherds were observed, but not collected.

The property on which 15Md337 lies was purchased from the Bryant heirs in 1919, but no structure appears at this location on the acquisition map. The Bryant residence shown on the acquisition map was recorded as site 15Md337 in this

project. It is likely that the Bryant's dumped their refuse in the area along the edge of the steep drop off which borders the main part of 15Md336 on the east.

Site 15Md336 is not eligible for the National Register, due to the previous disturbance due to bulldozing and tank training, and the lack of evidence of intact cultural deposits. No additional archeological work is recommended for 15Md336.

15Md337

Site 15Md337 is the late nineteenth to early twentieth century historic Bryant Farmstead (Figures D-3 and D-16). The property containing the site was acquired by the Army from the Bryant heirs in 1919, and structures are shown at this location on the acquisition maps. Historic artifacts were recovered from a 40 m north-south by 30 m east-west, or 1200 m², area, although artifact density was greatest in a 10 m square area around an old tree. A total of 79 historic artifacts were collected from 15Md337. Additional tiny whiteware sherds and glass fragments were observed, but not collected.

The farmstead location has been bulldozed and used for tank training and other military activities. Ground surface visibility was 100 percent on tank trails, 50 to 90 percent in scrub. No structural remains or evidence of other cultural features were noted. Only small areas around the bases of large trees had topsoil. Much of the site was denuded, and short scrub growth, with approximately 50 percent visibility was present on the rest. The site is located on a nearly flat area on the top of a southwest-oriented ridge. A sinkhole with standing water lies 40 m north of the main artifact concentration, and a tributary of Otter Creek lies 100 m south and 70 feet downslope. The ridge drops off to steep slopes on the east, south, and west sides of the site, but less steeply on the north towards the sinkhole, where this ridge spur joins a higher spur.

Site 15Md337 is not eligible for the National Register, due to previous disturbance due to bulldozing and tank training and lack of evidence of intact cultural deposits. No additional archeological investigation is recommended for 15Md337.

15Md338

Site 15Md338 is a lithic scatter of indeterminate pre-historic cultural temporal affiliation (Figures D-3 and D-17). The site is located at an elevation of 590 feet on a north-oriented knoll which represents the remnants of a toeslope on a northeast-oriented ridge. The site is located

50 m southwest of a tributary of Otter Creek and 260 m east of Otter Creek. Four flakes were found within a 5 m x 5 m, or 25 m², area on a severely eroded roadcut. They are obviously eroding from the adjoining wooded slope. Ground surface visibility was 100 percent on the roadcut, and 25 to 50 percent in adjoining woods. The vegetation on the site consisted of patchy weeds on the road cut, and short grass, weeds, and large trees on the hill side. The wooded area was walked at 5 m intervals and a few shovel tests were excavated, but no additional materials were discovered. The road to the south had obviously been widened with heavy equipment, and the area to the south of the road had been borrowed for fill. It is possible that the flakes recovered represent the northern extent of the site, and the remainder of the site has been destroyed by the road work.

The site is not eligible for the National Register, due to the lack of cultural-temporal affiliation, the low artifact count, and the previous disturbance due to road construction and use of tank trails. No additional archeological work is recommended for 15Md338.

15Md339

Site 15Md339 is of indeterminate prehistoric cultural-temporal affiliation (Figures D-3 and D-18). Site is located at an elevation of 535 feet on the floodplain of Otter Creek, where the floodplain adjoins the bases of several ridge spurs. Otter Creek lies 40 m north of the site. The site area is currently used as a dirt parking lot for people fishing at Otter Creek. The parking area has numerous gullies and is rutted by tires. Ground surface visibility was 100 percent on the ground surface, but most of the site appears to be buried under alluvium and colluvium. A dark band of soil approximately 30 cm thick was observed in the wall of a gully on the east side of the parking area. This band was approximately 15 to 30 cm below the ground surface in most areas. Scraping of limited portions of the dark band yielded five pieces of chert debitage. The dark band could be followed for an approximately 20 m length of the gully, which curved approximately 10 m east-west. An additional five pieces of chert debitage and a core were recovered from a 10 by 10 m area on the ground surface immediately west of the gully.

Site 15Md339 is considered potentially eligible for the National Register. Most of the site appears to be buried under alluvial and colluvial deposits, and was exposed in erosional gullies as a dark band of soil buried up to 30 cm below ground surface. Because of the depth of overburden, and the highly irregular surface caused by gullies and tire treads, deep testing will be necessary to clarify the nature and extent of the cultural deposits. Few other buried sites have been reported on the installation, but this is probably

because little subsurface testing has been done in the major floodplains.

15Md340

Site 15Md340 is a lithic scatter of Middle Archaic cultural-temporal affiliation (Figures D-3 and D-19). The site is located at an elevation of 675 feet on an upland karst plain. It is located on the southeast slope of a rise located between several sinkholes. The site is located 500 m south of Otter Creek. Three flakes and a Big Sandy Point base were found within a 30 m by 30 m, or 900 m², area in a tank training area. Most of the area is eroded or deflated to subsoil. Vegetation on the site was limited to patchy short weeds adjacent to the tank trails, and ground surface visibility was generally 50 to 100 percent. The point base and one of the flakes were found in a tank trail eroded approximately 0.5 to 1 m below the original ground surface ground surface, and the other two flakes were found to the south of the tank trail.

Site 15Md340 is not eligible for the National Register, due to the low artifact count, and the previous disturbance due to tank training. No additional archeological work is recommended for 15Md340.

15Md341

Site 15Md341 has a prehistoric component of indeterminate cultural-temporal affiliation and a late nineteenth to early twentieth historic component (Figures D-3 and D-20). The site is located at an elevation of 680 feet on the top and northeast slope of a northeast-oriented ridge. The site is located 100 m south of a tributary of Otter Creek and 500-700 m from Otter Creek to the north, east, and south. Several sinkholes, which hold water seasonally, and several farm ponds are also located within 200 m. The site was the property of the J.N. Padgett heirs when purchased by the Army in the early 1940's, and it is likely the historic materials recovered represent the remnants of the Padgett farmstead. Five historic artifacts and three prehistoric artifacts were collected from a 240 m long (southwest-northeast) by 60 m wide, or 14,400 m², area, but most of the artifacts were recovered from a 30 m x 20 m, or 600 m², area at the site center. There was no vegetation on most of the site, but dense grass and a few evergreens in a 10 m long by 3 m wide island of intact topsoil (10 cm thick) and vegetation. Ground surface visibility was 100 percent over most of the site area, except in the small vegetated patch, where visibility was nearly zero percent. A shovel test excavated in this vegetated area yielded one piece of flat glass from the topsoil zone. The remainder of the site was deflated or

eroded to subsoil, and in many areas, to more than 1 m below the original ground surface. Tank training and severe erosion have destroyed all of the site except in the small vegetated area, and probably smeared the artifacts over a wider area than the probable extent of the components at the time of occupation.

Site 15Md341 is not eligible for the National Register, due to the lack of cultural-temporal affiliation of the prehistoric component, the low artifact count, the disturbance due to tank training, and severe erosion. No additional work is recommended for 15Md341.

15Md342

Site 15Md342 has a prehistoric component of indeterminate cultural-temporal affiliation and a mid nineteenth to early twentieth century historic component (Figures D-4 and D-21). The site is located at an elevation of 570 to 580 feet on a broad knoll in the uplands. The knoll falls off very steeply on the north and west sides, and more gently on the east and south sides. The site lies 150 m northeast of a permanent tributary of Otter Creek and 560 m east of Otter Creek. Cultural materials were found over a 70 m northwest-southeast by 40 m northeast-southwest, or 2800 m², area. Most of the materials were found within 20 m of the knoll top, although a few artifacts were found at the base of the south slope. A concentration of approximately 10 artifacts, including a scraper, were found in a 3 m by 1 m area on the south cutbank of a small (10 m by 2 m) island of vegetation with an intact topsoil zone. The intact topsoil zone was approximately 15 cm thick. The knoll had scrub vegetation, with 50 percent ground surface visibility, but several tank trails passed through the site, and these had 100 percent ground surface visibility. The cultural materials recovered consist of three historic artifacts and 23 prehistoric artifacts. This property was owned by Luke Hibbs in 1919, and a structure was located on or near the hill at that time, according to the land acquisition map.

Site 15Md342 is not eligible for the National Register, due to the lack of cultural-temporal affiliation for the prehistoric component, the low artifact count for both the prehistoric and historic components, and the disturbance due to tank training and erosion. No additional archeological work is recommended for 15Md342.

Isolated Finds

Isolated Finds are not eligible for the National Register, and no additional work is recommended for any of the isolated find locations. State site forms had been submitted

to the OSA for Isolated Finds 1 and 4, but the OSA declined to assign state site numbers to these loci, citing the low artifact counts. No state site forms were submitted for Isolated Finds 2, 3, and 5, because the Principal Investigation did not feel that the contexts of these sites warranted consideration as archeological sites.

Isolated Find 1

Isolated Find 1 is a small lithic scatter of indeterminate prehistoric cultural-temporal affiliation, consisting of one endscraper and one piece of unutilized chert debitage collected from a 20 m (east-west) by 10 m (north-south), or 200 m², area (Figures D-1 and D-22). The isolated find spot is located at an elevation of 780 feet on the northwest and north slopes of a hill located 300 m northwest of an unnamed intermittent tributary of Cedar Creek, 400 m southwest of another intermittent tributary of Cedar Creek, and 660 m east of Dorrets Run. It is located in a tank training range, and the entire find vicinity is eroded or deflated to sub-soil or bedrock. Soil in the find vicinity was Vertrees silty clay loam, with six to 20 percent slopes, severely eroded. The vegetation consisted of patchy brush, with 75 to 100 percent ground surface visibility.

Isolated Find 2

Isolated Find 2 consists of two historic ceramic sherds found approximately 1 m apart on a relatively steep ridge slope 20 m east of and downhill from Pinwheel Road (Figures D-3 and D-23). The hill slope was in mowed grass, with variable ground surface visibility. The hill slope had obviously been graded, and portions of it had appeared to have been borrowed or otherwise disturbed during improvements along Pinwheel Road, Vine Grove Road (100 m to the south), and the junction of these two roads. The fact that the ridge slope was not dissected by the severe erosional gullies so common in the remainder of the tank training area and the fact that it was planted in grass suggests that the area was previously rehabbed or else the landscape modified following road construction. Because of the evidence for previous modification of the landscape and because the slope was an unlikely setting for a historic site, it is likely that the artifacts were redeposited at this location.

Isolated Find 3

Isolated Find 3 is a flake found in the Gander Branch stream bed (Figure D-3), which contained only small pools of water at the time of survey. No evidence was found of additional artifacts or of potential cultural deposits in the adjoining stream banks which were inspected for at least 20

m both upstream and downstream from the find. Although dry, or nearly so, at the time of the survey, erosional cutbanks up to 3 m tall exist slightly downstream from the findspot. The height of the cutbanks suggest that the stream carries a tremendous volume of water during periods of heavy rain. The flake was certainly redeposited in this location from an unknown site upstream during a rainy season flood.

Isolated Find 4

Isolated Find 4 is a very small lithic scatter of indeterminate prehistoric cultural temporal affiliation (Figures D-3 and D-24), which consists of two pieces of lithic debitage found in a 10 m by 5 m, or 50 m², area on the north eroded roadcut of a small knoll of vegetated land with an intact topsoil zone. The findspot is located at an elevation of 590 feet on the north slope of a knoll which represents the remnants of a northeast-oriented toeslope. The site is located 100 m south of a tributary of Otter Creek and 250 m southeast of Otter Creek. Ground surface visibility was 100 percent on roadbed and roadcuts, 10 to 50 percent on vegetated knoll. There were patchy weeds on the road cut, and long grass, weeds, and trees on the knoll. It is likely that the isolated find spot is the remnant of an archeological site which once covered this toeslope, but that most of the site has been destroyed by tank trails and road construction. The tank trails eroded most of the toeslope 1 m or more below the original ground surface. The area south of the site had deep standing water and could not be inspected.

Isolated Find 5

Isolated Find 5 is a flake found on the upper slope of a small mound in a tank training area (Figures D-4 and D-25). The mound is one of four on a hill top in an upland karstic plain. The ground around the mounds has been bulldozed, eroded, and deflated to at least 0.5 m below the original ground surface, and the mounds appear to have been constructed by bulldozer for use in military training activities (e.g., maneuvering tanks in tight circles around knolls). It is possible that a small lithic scatter once existed on this hill top, and was destroyed by the bulldozing and training activities. It is also possible that the flake was redeposited at this location from 15Md342, located in this training area, or from another nearby site.

Cemetery

The north half of Cemetery #37, or the Cedar Grove Cemetery (Colored), lies within the south margin of rehab area TA 3 (Figure D-1). The cemetery is fenced and signs are

posted on the fence identifying the cemetery and warning tanks to avoid impact to the site. Although tank drivers are told to stay at least 25 feet from cemetery fences, training has eroded the area right up to the Cemetery #37 fence to more than 1 m below the original ground surface. The cut-banks outside the fenceline were bermed with artificial fill a few years ago, to avoid further erosion and impact. No adverse impact to the cemetery is expected to occur as a result of the rehab activities. In fact, the rehab activities should enhance the erosion control and protection of the cemetery.

Historic cemeteries typically are not eligible for the National Register, and in Kentucky are considered cultural resources, but not archeological sites. They must be protected, however, in accordance with KRS 72.020. Fort Knox has already taken steps to protect this cemetery, and others. However, it is recommended that the installation consider increasing the buffer zone around cemeteries to 100 feet (approximately 30 m) as areas are rehabbed or as cemetery fences or signs need replacing. This is the buffer zone typically used by the mining industry, another activity which uses large machines and which can induce severe erosion. The large size of tanks results in a high probability of accidental impact to cemeteries with only a 25 foot buffer zone, especially from inexperienced drivers. An increased buffer zone also would be a beneficial public relations move, by showing more respect for the deceased and their descendants, many of whom still live in the counties surrounding the installation.

IX. CONCLUSIONS AND RECOMMENDATIONS

The Phase I archeological investigation of the 11 scheduled rehab areas resulted in the revisiting of sites 15Md143, 15Md154, 15Md163, and 15Md175, and the recording of sites 15Hd482 through 15Hd487, sites 15Md336 through 15Md342, and five isolated finds. One previously recorded site, 15Hd17, could not be relocated. One cemetery, Cemetery #37 or the Cedar Creek Cemetery (Colored), is partially located in one of the rehab areas.

Sites 15Hd482 through 15Hd484, Isolated Find 1, and the cemetery are located in rehab area TA 3. Sites 15Hd485 through 15Hd487 lie in rehab area TA 6. Site 15Hd17 was supposedly located near or in the entrance to rehab area TA 6, but could not be relocated. Sites 15Md154, 15Md336, and 15Md337 are in rehab area TA 8-N. Site 15Md143, and Isolated Finds 2 and 3 lie in rehab area TA 8-S. Site 15Md163 lies in rehab areas TA 8-S and TA 9-S. Site 15Md340 is in rehab area TA 9-S. Sites 15Md338 and 15Md339 are in rehab area TA 9-N. Sites 15Md341 and Isolated Find 4 are located in rehab area TA 9-W. Site 15Md342 and Isolated Find 5 are in rehab area TA 10-S. Site 15Md175 is in rehab area TA 10-N. No sites were recorded in rehab areas in TA 9-E or TA 11, the latter of which showed evidence of considerable previous disturbance due to its use as a motor cross track and due to borrowing for road fill.

Isolated Find 2 is of late nineteenth or early twentieth century origin. Isolated Finds 1, 3, 4, and 5 are prehistoric materials of indeterminate cultural-temporal affiliation. Isolated Finds 1 and 4 probably represent the remnants of small lithic scatters which have been destroyed by tank training, road construction, and erosion. Isolated Finds 2, 3, and 5 were in redeposited or probable redeposited contexts. Isolated finds are not eligible for the National Register, and no additional archeological investigation is recommended for the isolated find spots.

Site 15Hd17 was reported by Hanson to be a small lithic scatter of indeterminate prehistoric temporal-cultural affiliation. It is possible that the site has been destroyed by various activities which have taken place in the site vicinity since Hanson's discovery of the site. It is also possible that the chert pieces he observed, but did not collect, were of natural origin or were formed by tank impact ("tankifacts", to use a term coined by the O'Malley et al. field crew), and the site never actually existed. Numerous discrepancies exist between Hanson's description of the site vicinity and current field observations. It is likely that the site is incorrectly mapped on the OSA topographic quadrangles and the site actually is located elsewhere on the installation. No additional investigation of 15Hd17 is recommended in conjunction with the rehab project.

Sites 15Hd482, 15Hd483, 15Hd484, 15Hd485, 15Md175, 15Md338, and 15Md340 are small lithic scatters. Site 15Md340 is of Middle Archaic cultural-temporal affiliation and the remainder are of indeterminate prehistoric temporal-cultural affiliation. They are not eligible for the National Register due to low artifact counts, the lack of evidence for intact or potential intact cultural deposits, and the evidence for previous disturbance due to training, severe erosion and soil deflation, bulldozing, or road construction. No additional archeological investigations are recommended for these seven sites.

Sites 15Hd487, 15Md143, 15Md154, 15Md163, 15Md336, 15Md341, and 15Hd342 have both prehistoric and historic components. (No historic artifacts were recovered from 15Md143 in the current study and no prehistoric artifacts were recovered from 15Md163 in the current survey, but examples were recovered in the O'Malley et al. [1980] study when the sites were first recorded.) The prehistoric component at 15Md336 is of Middle Archaic cultural-temporal affiliation, and the remainder are of indeterminate prehistoric cultural-temporal affiliation. The historic component at 15Hd342 dates from the mid nineteenth to early twentieth century, and the remainder of the historic components probably date from the late nineteenth to early twentieth century. They are not eligible for the National Register due to low artifact counts, the lack of evidence for intact or potential intact cultural deposits, and the evidence for previous disturbance due to training, severe erosion and soil deflation, or bulldozing. No additional archeological investigations are recommended for these seven sites.

Site 15Hd337 is a late nineteenth to early twentieth century farmstead. It is not eligible for the National Register due to the lack of evidence for intact cultural deposits and due to considerable evidence of previous bulldozing of the site. No additional archeological work is recommended for 15Hd337.

Site 15Hd486 is an open habitation site, possibly a base camp, with an Early to Middle Archaic and a Late Archaic component. Site 15Hd486 is considered potentially eligible for the National Register, despite tank damage and severe erosion on the lower slopes, because there are probable intact midden deposits in the limited vegetated areas on the ridge top. The site also had a high artifact density, including numerous formal tools. Additional archeological investigation is recommended for 15Hd486. Avoidance of the site is not recommended, because the site will be completely destroyed by erosion in a matter of years, if the ridge is not rehabbed. In view of the limited area of potential intact cultural deposits and in view of the fact that rehab is scheduled to be completed on or about May 30, 1994, it is recommended that the archeological investigations at 15Hd486

take the form of a combine Phase II/III testing and mitigation. It is recommended that 8 m² of the intact portions of the site be hand excavated, using standard archeological procedures. Heavy equipment then should be used to strip the remainder of the currently intact areas to subsoil, with the Fort Knox staff archeologist and/or assistant staff archeologist monitoring the stripping. The exposed ground surface should then be examined for cultural features (e.g., pits, post molds). All cultural features should be excavated in their entirety, using standard archeological procedures.

Site 15Md339 is of indeterminate prehistoric cultural-temporal affiliation, and is located in a dirt parking area on the Otter Creek floodplain. The parking area has numerous gullies and is rutted by tires. Most of the site appears to be buried under alluvial and colluvial deposits, and was exposed in erosional gullies as a dark band of soil buried up to 30 cm below ground surface. Site 15Md339 is considered potentially eligible for the National Register, due to the potential for buried, intact, cultural deposits. Few other buried sites have been reported on the installation, but this is probably because little subsurface testing has been done in the major floodplains. Because of the depth of overburden, and the highly irregular surface caused by gullies and tire treads, deep testing is recommended to clarify the nature and extent of the cultural deposits. Although backhoe testing of deeply alluviated or colluviated areas is recommended at the Phase I level (Kentucky SHPO 1991:8), it was not possible to make the necessary arrangements for a backhoe during the period in which the Phase I level survey work was performed. Three to five backhoe trenches, each a minimum of 3 m in length, should be excavated in the Phase II investigations at 15Md339. Rehab of this area will involve the smoothing of the surface of the parking area and the placement of a clean gravel layer to create a better defined parking area. Because the proposed rehab activities in the site vicinity will control the erosion of the site and cap the site, no archeological investigations of the site beyond the Phase II backhoe testing are recommended for 15Md339.

No adverse impact to the cemetery is expected to occur as a result of the rehab activities. The rehab activities should enhance the erosion control and protection measures previously implemented at this cemetery. Historic cemeteries typically are not eligible for the National Register, and in Kentucky are considered cultural resources, but not archeological sites. They must be protected, however, in accordance with KRS 72.020. It is recommended that the installation consider increasing the buffer zone around cemeteries to 100 feet (approximately 30 m), where possible. This is the buffer zone typically used by the mining industry, which also uses large machines and conducts activities which can induce severe erosion. The large size of tanks results in a high probability of accidental impact to cemeteries with

only a 25 foot buffer zone, especially from inexperienced drivers. An increased buffer zone also would be beneficial for public relations through the demonstration of more respect for the deceased and their descendants.

In the remote possibility that archeological materials are discovered during the rehab activities, all activity in the vicinity of the finds must cease and the State Historic Preservation Officer (502-564-6661) and the DPW staff archeologist (502-624-6581) should be contacted, so a representative of those agencies may evaluate the materials. Also, if human remains, regardless of age or cultural affiliation, are discovered, all activity in the vicinity of the remains must cease immediately, and the state medical examiner (502-564-4545) and the appropriate local law enforcement agency (Fort Knox Law Enforcement Command, 502-624-6852) must be contacted, as stipulated in KRS 72.020.

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APPENDIX A.
RESUMES OF PROJECT PERSONNEL

Pamela A. Schenian
Principal Investigator

Office Address: Directorate of Public Works
ATTN: ATZK-DPW (Schenian)
U.S. Army Armor Center and Fort Knox
Fort Knox, Kentucky 40121-5000

Phone: (502) 624-6581

Date and Place of Birth: January 1, 1959; Waukesha, WI.

Present Position: J.M. Waller & Associates/Fort Knox Staff
Archeologist and Cultural Resource Manager

Education:

A.B.D. in Anthropology, Northwestern University, 1984.
M.A. in Anthropology, Northwestern University, 1982.
A.B. in Anthropology, Bryn Mawr College, 1980.

Previous Employment:

Senior Staff Archeologist, Archeology Service Center,
Department of Sociology, Anthropology, and Social Work, Mur-
ray State University, Murray, KY, November 1991-June 1993;
Staff Archeologist, November 1983-November 1991.

Southern Illinois University, Carbondale, IL: Field
Technician, November-December 1985, September-October 1984.

Illinois State Museum Society, Springfield, IL: Field
Assistant II (Supervisor), summer 1983; Field Technician,
summer 1981.

Center for American Archeology, Kampsville, IL: Field
Technician, summer 1982.

Department of Anthropology, Northwestern University,
Evanston, IL: Teaching Assistant, 1981-82 academic year.

Great Lakes Archeological Research Center, Milwaukee,
WI: Field Technician, summer 1979.

Field Research Experience:

Field experience on prehistoric and historic archeologi-
cal projects in the states of Illinois, Indiana, Kentucky,
New Jersey, South Dakota, Tennessee, and Wisconsin, 1979-
present.

Professional Publications, Reports, Papers and Manuscripts:
84 CRM contract reports on projects in Kentucky and Ten-
nessee.

1 Homicide site excavation contract report prepared in lieu
of court testimony in Illinois.

7 Papers presented at professional conferences.

5 Publications.

Doctoral candidacy qualifying paper: "A Theory of Individ-
ual Style Variation for Archeological Studies".

Manuscript submitted in partial fulfillment of the M.A.
requirements: "Models of Environmental-Cultural Relation-
ships: Testing with Archeological Evidence".

Stephen T. Mocas
Assistant Staff Archaeologist

Office Address: Directorate of Public Works
ATTN: ATZK-DPW (Mocas)
U.S. Army Armor Center and Fort Knox
Fort Knox, Kentucky 40121-5000
Phone: (502) 624-6581

Present Position: University of Louisville Program of
Archaeology/Fort Knox Assistant Staff Archeologist

Education:

Completed one year of doctoral program, Southern Illinois University, Carbondale, Illinois, 1972.

B.A. in Anthropology, University of Louisville, 1971.

Previous Employment:

Indiana University, Bloomington, Indiana: Staff Archaeologist, September 1991 to November 1993.

Murray State University, Murray Kentucky: Staff Archaeologist, November 1991 to November 1993.

Jefferson Community College, Louisville, Kentucky.
Anthropology Instructor, August 1981 - December 1982.

Louisville School of Art, Louisville, Kentucky: Anthropology Instructor, January - May 1976.

University of Louisville Archaeological Survey, Louisville, Kentucky. Project Director, Field Supervisor, or Research Assistant on various projects, July 1969 - January 1977.

State University of New York of Buffalo, Buffalo, New York. Senior Field Worker, June - August 1970.

Field Research Experience:

Field experience, Phase I-III, prehistoric and historic archeological projects in the states of Illinois, Indiana, Kentucky, New York, and Tennessee, 1969-present.

Research Grants:

Six grants for fieldwork and research.

Professional Publications, Reports, Papers and Manuscripts:

3 non-contract site reports on projects

9 CRM contract reports on projects

5 Chapters in additional site reports.

4 Publications, 1 in press.

APPENDIX B.
ARTIFACT INVENTORY

| Site | Count | Description |
|---------|-------|---------------------------------|
| 15Hd482 | 2 | bifaces |
| | 1 | unutilized primary flake |
| | 2 | battered chert cobble |
| | 5 | TOTAL |
| 15Hd483 | 3 | unutilized secondary flakes |
| | 3 | TOTAL |
| 15Hd484 | 3 | bifaces |
| | 1 | unutilized secondary flake |
| | 4 | unutilized tertiary flakes |
| | 1 | unutilized piece chert shatter |
| | 9 | TOTAL |
| 15Hd485 | 1 | unutilized primary flake |
| | 16 | unutilized secondary flakes |
| | 9 | unutilized tertiary flakes |
| | 7 | unutilized chert shatter |
| | 33 | TOTAL |
| 15Hd486 | 2 | projectile points |
| | 15 | bifaces |
| | 1 | scraper |
| | 1 | uniface |
| | 1 | utilized secondary flake |
| | 3 | utilized tertiary flakes |
| | 5 | unutilized primary flakes |
| | 43 | unutilized secondary flakes |
| | 65 | unutilized tertiary flakes |
| | 53 | unutilized pieces chert shatter |
| | 19 | unutilized blocky chert pieces |
| | 10 | battered chert cobbles |
| | 218 | TOTAL |
| 15Hd487 | 2 | unutilized secondary flakes |
| | 2 | unutilized tertiary flakes |
| | 1 | whiteware sherd |
| | 5 | TOTAL |
| 15Md143 | 2 | utilized secondary flakes |
| | 1 | utilized tertiary flake |
| | 1 | unutilized primary flake |
| | 7 | unutilized secondary flakes |
| | 18 | unutilized tertiary flakes |
| | 16 | unutilized pieces chert shatter |
| | 1 | battered chert cobble |
| | 46 | TOTAL |
| 15Md154 | 4 | whiteware sherds |
| | 4 | TOTAL |

| | | |
|---------|-----------|---------------------------------|
| 15Md163 | 1 | biface |
| | 1 | scraper |
| | 3 | unutilized pieces chert shatter |
| | 1 | porcelain sherd |
| | 6 | TOTAL |
| 15Md175 | 1 | unutilized primary flake |
| | 15 | unutilized secondary flakes |
| | 1 | unutilized tertiary flake |
| | 3 | unutilized pieces chert shatter |
| | 3 | battered chert cobbles |
| | 23 | TOTAL |
| 15Md336 | 2 | projectile points |
| | 1 | biface |
| | 1 | scraper |
| | 1 | utilized tertiary flake |
| | 3 | unutilized secondary flakes |
| | 5 | unutilized pieces chert shatter |
| | 31 | whiteware sherds |
| | 8 | other paste earthenware sherds |
| | 3 | stoneware sherds |
| | 3 | bottle glass pieces |
| | 3 | dish glass pieces |
| | 1 | glass lid liner fragment |
| | 62 | TOTAL |
| 15Md337 | 31 | whiteware sherds |
| | 1 | yellowware sherd |
| | 8 | other paste earthenware sherds |
| | 15 | stoneware sherds |
| | 3 | porcelain sherds |
| | 10 | bottle glass pieces |
| | 1 | dish glass piece |
| | 2 | unidentified glass pieces |
| | 1 | brick |
| | 4 | pieces flat glass |
| | 1 | toy--porcelain tea set sherd |
| | 1 | misc. metal hardware fragment |
| | 1 | cross-cut saw blade |
| | 79 | TOTAL |
| 15Md338 | 2 | unutilized secondary flakes |
| | 2 | unutilized pieces chert shatter |
| | 4 | TOTAL |
| 15Md339 | 4 | unutilized secondary flakes |
| | 2 | unutilized tertiary flakes |
| | 4 | unutilized pieces chert shatter |
| | 1 | battered chert cobble |
| | 11 | TOTAL |

| | | |
|-----------------|-----------|---------------------------------|
| 15Md340 | 1 | projectile point |
| | 1 | unutilized secondary flake |
| | 2 | unutilized tertiary flakes |
| | 4 | TOTAL |
| 15Md341 | 1 | uniface |
| | 2 | chert shatter |
| | 1 | whiteware sherd |
| | 1 | redware sherd |
| | 2 | bottle glass fragments |
| | 1 | piece flat glass |
| | 8 | TOTAL |
| 15Md342 | 1 | scraper |
| | 1 | utilized piece chert shatter |
| | 3 | unutilized secondary flakes |
| | 8 | unutilized tertiary flakes |
| | 8 | unutilized pieces chert shatter |
| | 1 | battered chert cobble |
| | 1 | groundstone tool |
| | 1 | whiteware sherd |
| | 2 | bottle glass pieces |
| | 26 | TOTAL |
| Isolated Find 1 | 1 | scraper |
| | 1 | unutilized tertiary flake |
| | 2 | TOTAL |
| Isolated Find 2 | 1 | redware sherd |
| | 1 | other paste sherd |
| | 2 | TOTAL |
| Isolated Find 3 | 1 | unutilized tertiary flake |
| | 1 | TOTAL |
| Isolated Find 4 | 1 | unutilized secondary flake |
| | 1 | unutilized piece chert shatter |
| | 2 | TOTAL |
| Isolated Find 5 | 1 | unutilized tertiary flake |
| | 1 | TOTAL |